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ART. I.—1. *Mouvement Commercial.* Published by the French Government.
2. *Annuaire des Deux Mondes.* 1857.
3. *Statistical Tables of the Board of Trade.* 1857.
4. *Personal Observation.*

THE attitude of the French Government, and the interests of the French nation, present certainly the most important, and perhaps also the most complex, question of our external politics. Great Britain and France are the two European empires from whose mutual alliance each has the greatest commercial and diplomatic advantages to secure—from whose mutual hostility each, possibly, has the greatest actual danger to apprehend, and each, no doubt, has the greatest contingent glory to acquire. It must be acknowledged that the deductions which we would draw from the events that have transpired around us, are not of an uniform tenor. On the one hand, the alliance between the two countries has subsisted, without any solid interruption, during twenty-eight years, and under three distinct forms of government in France. It has been based, therefore, on a foundation more secure than that of an alliance with a single dynasty under the present Empire; or a sympathy with cognate political institution, under the Orleans monarchy. In 1854, after twenty-four years of general amity between the two nations, their friendship was cemented by a union in war, in defence of the principles which England had invariably cherished; but in defiance of those projects of territorial acquisition at the expense of Turkey, which had been the dream both of the first Empire, and of the restored Monarchy in France. It may not only be thus assumed, but it

may be also demonstrated, that the Anglo-French alliance exists under a direct reciprocity of commercial interest. And while the peace or war policy of this country rests upon fixed and determinate principles, the French Government, since the treaty of 1856, has actively addressed itself to domestic interests, which it will require all its attention to promote.

On the other hand, it cannot be forgotten that France, since her peace with Russia, has exhibited a large amount of warlike activity; that the French military establishment is far more than commensurate with the contingent necessities (large though they be) of civil government; that the increase of the port of Cherbourg, the extensive shipbuilding, and the large maritime conscription of that country, imply a desire to rival our naval strength, if not also to contest our naval supremacy. It must be remembered also, that, on two recent occasions—that of the Russian claim to the Isle of Serpents and Bolgrad, and that of the conspiracy of last January—the policy of the French Government indicated a certain divergence from the principles before recognised in the alliance of the two countries. Nor can we reject, as entirely without significance, the fact, that the absolute control exerted by that Court over the French press, and the restriction from discussion of all topics hostile to its policy, do not preclude the publication in Paris of innumerable attacks on the British constitution and the British people.

The leading characteristic of the French imperial policy is that of a government too firm for domestic revolution, and yet too calculating for impulsive war. It is the apparent object of the present Emperor to approximate, as far as possible, by means of a prosperous peace, to that international predominance which the Great Napoleon achieved by means of military success. The maintenance of the British alliance in the interest of commerce has, therefore, hitherto formed the cardinal aim of his policy. For no war would so directly cripple the external trade of France, as a war between that country and our own. This alliance, far from checking, has, on the contrary, developed the naval and military power of the French Government, inasmuch as, by increasing the national wealth, it has added to the means of war. Prosperity and arms form obviously the two chief conditions of political power. The combined development of this double object appears to be the problem which the French Emperor has set himself to work out. We shall here endeavour to indicate the degree in which it has been realised. A government which could so regulate its commercial policy as to create a public wealth adequate to the permanent establishment of 400,000, troops, of whom 150,000 are disposable for foreign service—to increase its fleets and docks, and to maintain 40,000 registered

sailors in reserve—might fairly aspire to pre-eminence among the European powers.

We pass from these general observations to an inquiry into the actual condition and resources of the French Empire. We will take first the question of its population, which must materially affect its external policy.

It is a singular anomaly, to see a civilised and wealthy nation, like that of France, scarcely contributing to the population of the New World in an appreciable degree, and yet interposed between two nations which are annually emigrating to an extent by ten times that of the present increase of the French population itself; for it would be difficult to determine, from authentic returns, whether Germany or the United Kingdom had availed itself most largely of the modern system of colonisation. It is computed, on the other hand, in statistics published at Paris, that emigration from the French territory does not exceed, on an average, 12,000 annually. The immediate cause of this fact is obvious. The French population does not indeed decline; but the ratio of increase has vastly diminished, both under the census of 1846–51 and under that of 1851–56. It is to be assumed that the population does not increase more rapidly than the labour, the production, and the importation, which together constitute the means of living. France, therefore, has not the motive of necessity which has actuated other nations in emigration; and, probably, some other intrinsic differences between the character of the French people and our own might be adduced in relation to the distinction of the two nations in point of colonisation. But it is to be apprehended that the arguments which have been drawn from the last and the preceding census are somewhat hasty; and that it is not possible to form such conclusive deductions, with regard to the political future of France, as have been put forward on those data.

We will first glance at the returns of population during the last twenty years. The census, as has been already intimated, is taken in France not decennially, but quinquennially. It appears that, under the census of 1841, as compared with that of 1836, the French population had increased by 650,000; and that, under the census of 1846, as compared with that of 1841, it had increased by 1,170,000. On the other hand, in 1851 the increase above the census of 1846 was not more than 382,000; and the increase in 1856, above the census of 1851, was not more than 254,000. What are the assumptions to be drawn from these figures?

Now, so far as politics are immediately concerned, we know only of four leading influences on the tendency of the population in regard to numbers. The population may be depressed by a

sense of insecurity, arising from unstable government, by a course of commercial impolicy in the fiscal laws or the foreign relations of the state, by loss of life in war, and by a costly and oppressive system of administration. There are, of course, many other influences which are not immediately set in motion by the character of the government; but, in regard to those which have been enumerated,—if we refer the difference of increase between 1,170,000 in 1841–46, and 382,000 in 1846–51, chiefly to the difference in public security between five years of M. Guizot's administration and five years principally of revolution, how are we to account for a still greater difference between the periods 1841–46 and 1851–56, as represented by the figures 1,170,000 and 254,000, since both those periods were periods of nearly equal public security? If, again, the difference of population is to be referred mainly to the cost or oppression of the system of government, how are we to account for the fact, that this system was hardly less costly and oppressive under the Soult-Guizot Ministry, when the increase of population was at its highest point, than under the Empire, when it had been at its lowest ebb? For, towards the close of Louis Philippe's reign, the French army was nearly as extensive as at present; and whatever titular liberty might exist was cancelled by venality.

> "For freedom's forms disguised the despot's thought;
> He ruled by synods, and the synods bought."

There has been no considerable difference in the commercial policy or the commercial alliances of the French Government during any one of these periods; and although the Crimean war, during the last of them, involved a greater mortality to the French than to ourselves, even in proportion to the numbers engaged, their losses would account for a very small part only of the difference of increase between the census of 1856 and that of 1846; while the war in question formed no distinct incident of the imperial system, but would have been pursued, in similar circumstances, by any one of the governments of France since the year 1830, with the exception, perhaps, of that of M. Thiers.

Thus far, therefore, we arrive at the negative conclusion, that the declining ratio of increase in the French population cannot be ascribed, at any rate in considerable degree, either to the expenditure or despotism of the French Government, or to its belligerent character, or to its commercial policy. We have seen, moreover, that the stimulus to population, arising from a sense of public security, which the French people undoubtedly possessed during the chief part of the five years 1851–56, in as great a degree as during the five years 1841–46, could hardly be imagined, if we were to take bare figures for our index, to

have produced an appreciable result in the later period. What, then, are the causes of the present decline in the ratio of increase; and are they permanent or accidental?

It would be quite inconsistent with the variety of topics at which we propose to glance within a small compass, to enter at any length into those indirect agencies which may spring from the composition of French society. It is sufficient to observe, that no social causes of a permanent nature have been satisfactorily adduced, any more than political causes arising from the present organisation of the State; for, although the condition and prospects of French agriculture, and the laws of inheritance which have in great degree governed them, might plausibly be counted as an influence hostile to the growth of the French population, that influence must have been too gradual to account for any considerable distinction between the ratio of increase in the population ten or twelve years ago, and the ratio of increase in the population now.

We are inclined to ascribe these altered circumstances to the concurrence of three temporary and incidental causes during the five years over which the last census extends, as well as to the commercial and monetary effect of the Revolution of 1848. In the first place, after eliminating so many theories of increase, it appears most rational to refer the rapid rise of the population during 1841–46, as compared with the previous five years, to the marked continuance of good harvests, which exactly coincided with those five years; whereas the harvests of 1836–41 were invariably, and those of 1846–56 were frequently, deficient. Regarding, therefore, the harvest as one agent in the ratio of increase, it seems not unfair to account for the reduction in this increase from 1,170,000 in 1841–46 to 382,000 in 1846–51, in a primary degree to the general scarcity of the latter period, and in a secondary degree to the pauperising influence of the Revolutions of 1848, both in the internal trade of France and in its relations with the Continent. If we then pass to the period 1851–56, during which the increase declined to 254,000, we shall find, as we have said, three concurrent causes—the cholera, the Russian war, and a recurrence of the same scarcity—to set against the restored stability of government. If we admit that the French lost 100,000 men in the Crimea, we shall at once account for nearly the whole decrease below the preceding census. We have, then, the losses by cholera to balance the gain from the increase of political security.

Two observations require to be made here. The first is, that the losses to the population, by defective harvests, are of two kinds —these are, those immediately incurred by death from actual famine, and those indirectly sustained by the influence of the

poverty arising from such harvests upon marriages and other causes of population. The second is, that—unless it can be maintained (and we have no notion that it can) that the decrease of legitimate births, through a decrease of marriages, is attended by a corresponding increase of illegitimate births—the influence on population of the poverty which revolution produces is liable to survive that poverty itself, by inducing a permanent habit of single life upon those who might have been disposed to marry, when the poverty in question prevented them from doing so. It may be doubted, therefore, whether the period 1851-56 is sufficiently removed from one of unsettled government to develop the full advantages of its political security on population. In all these circumstances, while we look upon the immense increase of the population during the five years 1841–46 as the result of an extraordinary combination of four favourable classes of causes—namely, five abundant harvests in succession, domestic security, external peace, and the absence of epidemical disease—we regard the subsequent reduction in this increase chiefly as the result of influences in their nature temporary, and not more liable to recur than under any preceding census. We see no reason to apprehend, therefore, that a recurrence, during the period 1856-61, of the four classes of influences observable in the period 1841-46, to which we have adverted, would produce materially different results from those exhibited by the census of 1846.

The application of these considerations to the adoption of a policy of peace or war by the French Government—so far as such a question can be influenced by the ratio of increase in the population—is that, although it would be impossible to enter upon an aggressive career with such figures before them, it is not improbable that the census of 1861 may show a very different result, and point to a different conclusion. It is, therefore, only the *immediate* war or peace policy of France that can be presumed from the last and the preceding census.

2. We now turn to the financial condition of the French Government. Certain statements of receipt and expenditure are periodically published by authority in Paris. They are neither so full, nor so satisfactory in some other respects, as our own. But we are not disposed to question the good faith in which they are drawn up. It is certainly no uncommon supposition that these statistics are cooked. We are, however, ourselves content to take them as not wilfully inaccurate, although there are certain matters on which a free Parliament would demand explanation.

This view of the sincerity and general accuracy of these returns is based on their internal evidence. A government, willing

to deceive the public in order to improve its own cause, would hardly avow to the fact of the declining increase of population to which we have just adverted. And we see nothing irreconcileable with probability in any of the details of receipt or expenditure which have appeared. It is true that less appears to be expended on the army than we should have imagined; but, on the other hand, the expenditure of the rest of the revenue appears to be satisfactorily accounted for. We can only, therefore, suppose that the government have made a fictitious return of military expenditure below its real amount, on the supposition that they have made a similarly fictitious return of income. But, as they would as much lose credit for prosperity by underrating their revenue, as they would gain credit for pacific intentions by underrating their military expenditure, it is difficult to perceive that any counterbalancing advantage could be secured from a falsification of these returns.

In a similar manner, a certain sum is charged in the schedule of expenditure, under the joint head of "Commerce, Agriculture, and Public Works," without defining the sum allotted to each of the three subjects. This is, no doubt, an unsatisfactory statement; and, we suspect, the expense of the Home Departments is thus commingled, that the public may not be made aware how large a proportion of this charge relates to Works, and how little to Commerce and Agriculture. But it would be easy for the government to divide these three subjects of expenditure, if it pleased, and make a false return upon each, without a probability of detection. Here, therefore, is another indication that these statements, though defective, are not untrue.

On the other hand, there are no statements of the expense incurred by the Russian war, and the military charge for the year 1856 is nearly the same with that for 1857. This, if designed as a complete statement, would be obviously absurd. The only information on this point is obtained by contrasting the interest paid on the public debt in the two years respectively; and while, on the face of the French financial statement for 1856, the income exceeded the expenditure, there is nevertheless an *additional* charge of 55,000,000 francs for 1857, under the head of interest on this debt! We will assume, however, that these financial statements are designed to refer simply to the ordinary expenses of a peace establishment; and though singularly defective, are still reliable. A government which acknowledges such an addition to its public debt, may fairly claim credit for sincerity in other details of its expenditure.

In order to make intelligible the French financial statements, it should be stated at the outset, that they are drawn up under three principal heads. Of these, the one relates to income, the

other two to expenditure. The computed revenue in these statements is, not the gross, but the net, revenue. Independently, therefore, of what we term public expenditure in this country, there are charges for collection. Now, the French Government, with a logic or a faculty for hair-splitting, in which we are unable to follow them, have divided from their chief expenses, some which they have included under the head of "*Dépenses d'ordre*," as though they deemed that they could really draw a precise line between expenses incurred in the maintenance of public order, and expenses incurred for objects beyond it. Under this head, they have added the charges for collection of revenue; so that, in addition to the principal head of expenditure, there is a second, entitled, "Dépenses d'ordre et frais de perception."

We will quote the figures for the year 1857. It appears that the French revenue was then 1,709,000,000 francs, or somewhat more than L.68,000,000 sterling. The "expenditure," meanwhile, was 1,121,000,000 francs, or somewhat under L.45,000,000; and the costs for "order and collection" were 523,000,000 francs, or nearly L.21,000,000. There being no subdivision between the two charges thus thrown together into a single column, it is impossible to ascertain in what degree the aggregate sum of 523,000,000 francs refers to the expense of public order, and in what degree to that of collecting revenue. In addition to this, there is a further charge of 54,000,000 francs for "extraordinary public works," by which either Cherbourg, or the recent precautions against a fresh inundation are probably designed. The total of what is thus charged on the gross revenue is therefore 1,698,000,000 francs—less by 9,000,000 francs than the gross revenue itself. This will certainly prove a satisfactory statement, if no additions shall have been made to the interest on the public debt for the current year.

The details of French revenue can scarcely be of much further interest than in regard to the relation of direct to indirect taxation. It appears that the former amounted to 429,000,000, and the latter to 1,026,000,000 francs. Notwithstanding the disparity of figures which evince the great preponderance of indirect taxation, we can hardly be dissatisfied with the result, when we bear in mind that the increased recognition of the principle of direct taxation in our own country is of recent origin; and that our own finances exhibit probably as great a preponderance of indirect burdens. The remainder of the French gross revenue is derived from minor sources.

It may, perhaps, be surprising to those who imagine the immediate expenses of the army to constitute the chief burden of the State, under the Empire, to learn that military expenditure does not form so much as *one third* of the total expenditure,

even exclusively of that incurred under the head of "expenses of order," etc. The total current expenses of the French army and navy are less by fifty million francs than the interest chargeable on the national debt. It appears that, for 1857, not less than 510,000,000 francs, or more than L.20,000,000 sterling, was paid as interest on this debt. This charge is (though we here speak from memory) within thirty per cent. of that upon our own treasury. The charge for the military department was 336,000,000 francs for 1857, and 337,000,000 for 1856.[1] This equals nearly L.13,500,000 of our money. The navy, meanwhile, cost 120,000,000 francs for 1857, and 121,000,000 for 1856. This is somewhat less than L.5,000,000 of our money. Thus far we account for between L.38,000,000 and L.39,000,000 sterling. The charge for agriculture, commerce, and public works, is together 80,000,000 francs, or more than L.3,000,000; and the other expenses are scarcely of much importance. It will be seen that the French gross revenue, about L.68,000,000 sterling, is expended under three principal and some incidental heads. More than L.20,000,000 are charged on account of collection and public order, more than L.20,000,000 on that of interest on the debt, and nearly L.20,000,000 on that of the army and navy. The remainder—nearly L8,000,000—is expended in the minor obligations of the government. Although we cannot determine the proportion paid, under the first of these heads, to the account of revenue-collection alone, we shall hardly be wide of the mark, if we estimate the *net* revenue of the French Government at about L.55,000,000, and their *available* revenue (or that which remains after payment of interest on the public debt) at about L.35,000,000.

In regard to any direct inferences which may be drawn from these figures, in their relation to a policy of peace or war, although it must be confessed that the indications are not of a very circumstantial kind, it certainly strikes us, that a government forced to borrow so largely, and to add so slightly to taxation, during the Crimean war, is by no means in a pecuniary position to undertake another great military expedition, unless it be supported, in its own country, by the strongest popular enthusiasm. It is to be observed also, and it will presently be more clearly seen, that all those portions of the "available" French revenue which do not already relate to naval and military affairs, are, to all appearance, inalienably appropriated to civil, ecclesiastical, and educational interests.

3. We pass, thirdly, to the question of the singular position of

[1] It is to be observed, that this sum includes that charged for the military department under both heads of expenditure.

France, in reference to her supply and exportation of precious metals, as a question ancillary to that of her finances. In this respect, the French Government appears likely to be thrown into extreme difficulty; and the subject has a direct relation both to its financial and its diplomatic policy.

The truth is, that, in the French territories, gold is growing more plentiful and silver is growing more scarce, in a degree which threatens the extinction of silver coin. This tendency has been noticed for many years; and nothing but the improbable discovery of additional mines, which shall produce silver as the mines of California and Australia produce gold, is likely to counteract it. We will take the returns which we have before us, for the years 1855 and 1856, by way of example. During the former year, it appears that the importation of gold and silver jointly amounted to 500,000,000 francs in value; and the exportation of the same metals to 480,000,000 francs. Here, certainly, was a balance in the aggregate of 20,000,000 francs, or an increase of four per cent. in the import over the export of precious metals. But, of the imports, not less than 380,000,000 francs, or 76 per cent., were in gold; and only 120,000,000 francs, or 24 per cent., were in silver. If we turn to the corresponding analysis of exports, we shall find that, of the total of 480,000,000 francs, only 162,000,000 were in gold, and not less than 318,000,000 in silver. The French exports in silver were, therefore, nearly double the exports in gold, while the imports in silver were less than one-fourth of the imports in gold.

In 1856, this inverse relation between the export and import of silver was yet more prominent. The total imports of both metals were, in that year, 575,000,000 francs, and the total export 483,000,000. The aggregate gain was then nearly four times as large as in the previous year, and not less than 92,000,000 francs. But the disparity between the export and import of the two metals, as we have said, was still greater. It appears that, in 1856, out of a total of 575,000,000 francs, the importation of gold reached the amount of 465,000,000, and the importation of silver only 110,000,000. If we turn to the export table for the same year, we find that, out of a total of 483,000,000 francs, the exportation of gold did not amount to more than 90,000,000 francs, while the exportation of silver amounted to 393,000,000.

The first two questions which suggest themselves are, the quarters from which, in either case, the metal is derived, and the quarters into which it is drawn away. With regard, in the first place, to the import of gold, its abundance in France arises, as we have said, from the successful working of the mines of California and Australia. Nearly all the gold which France imports

in bullion is derived from those two countries. And there can be little doubt that the proportion of gold which she imports in coin must be very small. If we turn to the table of money struck at the French Mint in 1855, we shall find that the gold coinage of that year largely exceeded the total importation of gold, both in coin and in bullion. The Mint, of course, must have received a large balance of bullion outstanding from the preceding year. It appears that, while the importation of gold in 1855 amounted to 380,000,000 francs in value, the gold coins struck at the French Mint amounted to not less than 446,427,000. It must be presumed, therefore, that nearly the whole of the gold imported into France in 1855 was imported in the shape of bullion.

But with regard to silver, the inference is exactly the reverse. While 120,000,000 francs' worth of that metal were imported during the same year, it appears that the silver coinage did not exceed 25,500,000 francs. It is probable that a government possessed of so ample a supply of gold, would not always keep up in its coinage with the rapidity of its importation. But it is extremely improbable that a government, growing poorer and poorer in silver year by year, should fail to coin immediately all the silver bullion it might receive. We may, therefore, take the difference between the receipts of France in silver and her coinage in silver, as representing the difference between the silver coin and silver bullion imported into her territory. We have already seen that, while the French imports in silver, during 1855, were valued at 120,000,000 francs, the French coinage in silver, in the same year, did not exceed 25,500,000 francs. We must, therefore, presume that the difference, namely 94,500,000 francs, was imported into France in the shape of coin.

The drain of silver from the French territory arises principally from its Chinese and Indian trade. In China and India, silver is the only negotiable precious metal for commercial dealings on an extensive scale. In the meantime, gold is growing a drug. It may be premature at present to anticipate the effect of these circumstances on the relative value of gold and silver in France; but it is quite clear that gold must, before long, be much more extensively used in coining than at present. Indeed it has been felt that the coinage of gold could not be reserved exclusively for twenty-franc and ten-franc pieces. The introduction of five-franc pieces in gold could not have been much longer delayed. The Mint will then probably call in all five-franc pieces in silver, and recoin them as single francs. The French will thus be rid of the most awkward coins that they possess, and derive a large additional supply of single franc pieces. There is no doubt that there will thus be a loss on the aggregate amount of silver coinage current in the empire; for the five-franc pieces will

hardly produce, on an average, more than four single francs each. Twenty per cent. is no excessive allowance for the loss incurred by wear and re-coinage. But the advantage in negotiation will be immense, by increasing the quantity of small money still woefully scarce. The recent gold five-franc pieces will take the place of the silver ones; and the result will be, that every five-franc gold piece struck will represent the addition of four single silver francs to the negotiable coinage of France.

This alleviation of the difficulty will in itself, however, as is obvious, be but temporary. The silver five-franc pieces would soon have been called in, re-coined as single francs, and shipped off to the eastern world. Yet the expedient is not to be despised; even as a momentary expedient; and if the French Government could devise a mode of arresting the present tendency to the diminution of silver, it would be calculated to render permanent advantage. But, unless either this tendency can be countervailed, or vast silver mines shall be shortly discovered —and it will be acknowledged that the one achievement is as difficult as the other event is improbable—there appear to be only two possible issues for the French financiers. First, they must introduce, on a large scale, either the coinage of base metals with a factitious standard of value, or the small paper money, such as are now current in the Austrian Empire; or perhaps both. Or, secondly, they must acquiesce in the almost total elimination of any intervening currency between gold and silver. The choice, in the latter case, will lie between copper francs fit for Brobdignag, and gold francs which might be used in Lilliput. The alternative, in a word, will lie between the coinage of Lycurgus and the application of the homœopathic principle to the French Mint!

One observation on this point remains. To arrest the drainage of silver by eastern nations is, no doubt, a matter of extreme difficulty. But if this difficulty be insurmountable, as some politicians assert, what is to become of the French trade with India and China, when all other silver has been drained from France, except that comparatively small proportion which she annually imports from Europe and America? It is clear, that if the difficulty be then found insurmountable, her oriental trade must nearly perish.

These considerations have a direct bearing on the pacific policy of the French Government. We have seen that France is threatened with the alternative between a gold currency and scarcely any currency in precious metals whatever. We have seen, also, that California and Australia are the two quarters from which she chiefly derives her supply of gold. Now, if

her communications with those two regions were cut off, what would become of her currency? In regard to the event of war between France and this country, her direct supply of gold from Australia must immediately cease, at least until she could conquer that colony by force of arms; and her direct supply, even from California, would be regulated by the degree in which she might attain the dominion of the seas. Nor are we disposed to think, that her indirect supply from either territory through neutral powers is likely to be extensive. It is not less obvious, that whatever silver coin she might derive from commercial interchange with this country, would cease also. It must be for French politicians to determine whether the chances of war with this country would be worth the difficulty to be anticipated from the positive and contingent loss of France in respect of precious metals.

4. Turn, fourthly, to French commerce. It appears that, in 1856, the total number of ships "entered" at French ports was 25,673, and that they represented a tonnage of 4,000,000. Of these, the French flag covered 10,000 ships, which possessed a tonnage of 1,400,000. It appears that the total number of ships "cleared" in the same year was 14,000, with a tonnage of 2,300,000. Of these the French flag covered 5950 ships, and a tonnage of 1,052,000. The disparity between export and import shipping is partially, though by no means wholly, to be explained by the exports incident to the Crimean war. It appears that the total excess over the navigation of the preceding year, in point of vessels "entered," was 3200 ships, and 1,042,000 tons. That this excess is to be ascribed chiefly to the return of the French army, and its *matériel*, must be inferred, both from the extraordinary increase of ships entered in 1856, as compared with 1855, and also from the size of the vessels, which their aggregate tonnage indicates. These vessels must chiefly have been foreign transports.

The increase of French foreign and colonial trade may be more readily gathered from the tables of the Douane. According to them, in 1856, the French "general commerce," in exports, was 2,267,000,000 francs in value, and the French "special commerce," in exports, 1,520,000,000. The corresponding figures, respectively, of general and special commerce, in imports, were 2,319,000,000 francs, and 1,626,000,000. According to official statements, the increase over the preceding year was 155,000,000 francs in import, and 185,000,000 francs in export (special commerce).

If we turn to the French coasting trade, we find that it amounted to 2,202,000,000 tonnage in 1855, and to 2,231,000,000

in 1856. The increase is 29,000 tons. It is difficult to perceive that either these figures can, in any degree, or the figures in the preceding paragraph can, in any great degree, have been influenced by the Russian war.

These figures, in spite of the increase to which they attest in French trade, do not warrant a high estimate of French mercantile activity on the seas. It appears, both from the ships "entered," and from the ships "cleared," that the French flag does not cover more than *two-fifths* of the shipping, if we calculate it according to tonnage, trading with French ports. What is, perhaps, more surprising than all, is the probability that France will be beaten out of the field by Austria in Mediterranean traffic. If we contrast the trade of Marseilles with that of Trieste—and the French trade on the Mediterranean with the Austrian trade on the Adriatic—we shall find, in either case, the latter nearly double the former. It appears that the French marine on the Mediterranean does not exceed 30,000 in men, and vessels representing a tonnage of 181,000. The Austrian marine on the Adriatic, on the other hand, amounts to nearly 60,000 men, and to a tonnage in ships of not less than 316,000. We are here, it is true, comparing what is the only sea-board of Austria with a very small proportion of the sea-board of France. The *total* French maritime inscription amounted, on the 1st of January 1857, to 168,000 men, together with ships 14,200 in number, representing an aggregate tonnage of 784,000. But it must be remembered, that while France has more sea-board than frontier, the sea-board of Austria, represents not one-tenth of the total of her boundaries. The maritime trade of Austria, moreover, is advancing with great rapidity, while that of France, on the Mediterranean, is comparatively stationary.

There is no doubt that, although the direct trade between France and England may not be so large as M. de Persigny, in a remarkable address, delivered in his own country, lately represented it, much of the prosperity of France, as arising from her external commerce, depends on the maintainence of peace between the two Powers in question. In the first place, every maritime Power going to war with another maritime Power, has to encounter the contingency of losing the dominion of the sea. To suffer naval defeats, or naval blockades, at the hands of a rival in possession of an immense fleet of cruisers, is nearly equivalent to a commercial blockade of the whole coast. This is the peril, or the *contingent* loss, of either Power, with a difference of degree, by a declaration of war; and it would enter into its policy according to the probability of the issue. But, besides this, there is a great *positive* loss to be encountered. It happens that the immediate loss to French commerce by a rupture with this country is

almost exactly proportioned to the contingency of trans-maritime acquisitions as a result of that rupture. Our colonies present, no doubt, a temptation to naval conquest. But in nearly all those colonies, the French nation has commercial settlements and commercial interests, which a rupture with this country would certainly and immediately destroy. It is at least clear that France would enter upon war with this country under immediate commercial disadvantages, such as she never experienced in her war with Russia, which her finances appeared unable to sustain.

5. A few words must be said on the domestic activity of the French Government and the French nation, in reference to the important question of material reforms. Without entering at length into the French territorial laws of inheritance, it may be surmised that they are the origin of the present deplorable tendencies of the population. It is well known that there is an apparently irresistible incentive among the French people, in nearly all districts, to abandon a country for a town life. This tendency at once overstocks the towns and depopulates rural districts. The population rises above the natural capabilities of the labour market in the one case, and falls below what the labour market ought to yield in the other. The last French census indicates the migration from the country to the towns very clearly. We have seen that the total increase of the population during the five years 1851–56 was only 254,000. But, in the meantime, the Department of the Seine—in which Paris lies—gained 305,000, or 51,000 more than the whole French nation, inclusive of that department. Exclusively, therefore, of the capital department, the French population had declined by 51,000. This was chiefly the result of migrations to Paris. What Paris is to the rest of France, the *chefs lieux* are to their respective departments. They absorb the rural population on a similar principle, but on a smaller scale. Agricultural districts decline in proportion as industrial centres increase. Instead of the reciprocal interests which we see on our own soil, uniting the rural to the oppidan population, the country is abandoned for the towns. This unnatural tendency to social centralisation, if it be suffered to proceed, must eventually pauperise France.

The backward condition of French agriculture is undoubtedly the spring of this incentive of migration to the large towns, which are as great a temptation to the French peasantry as the rich pastures of Australia to those of our own nation. And this, again, is the result of the landholding poverty which successive divisions of the soil have brought about. Where there is no landholding wealth to foster, and to apply agricultural art, there can be no agricultural prosperity. The evil, therefore, is so

deep, that it lies at the very foundation of the French social laws. Yet its accumulating magnitude will at length become so intolerable, that France must ultimately either remodel her territorial laws, or perish. The very intensity of the evil may possibly elicit from the French people that recognition of the necessity for a reform of their territorial laws, without which no government, perhaps, would be competent to effect it on a complete scale.

This is, in our view, the hardest and the most important problem with which the French Government can have to deal; and its solution in practice would strengthen the imperial dynasty more effectually than all the victories of the First Empire beyond the Rhine. They have to address themselves to an evil which acts not less perniciously on politics than on society. The accumulation of oppidan population, beyond the means of labour, supplies a perpetually increasing incentive to popular revolution, just as the decline of rural populations threatens to pauperise the whole of France. There are indications that the government is occupying itself in this great question. The danger of a recurrence of the late inundations has been provided against, in the execution of extensive works along the banks of the great rivers; and some other instances of administrative activity in the interest of agriculture might be mentioned. The French Government have here a task to pursue, which many years of activity and peace would very imperfectly accomplish.

French railways now demand a moment's attention. The activity, both of the government and of the people, is here very marked. The reason does not lie deep. There is a good deal of floating commercial capital, while there is very little agricultural capital, in France; enterprise is active; the government lends a willing hand to the improvement of communications; and railway speculations have not yet, we believe, suffered from the reaction which, as we lately observed, has reduced railway profits in this country to an average of between one and two per cent.

It appears that, up to the close of last year, nearly 7000 kilometres, or about 4500 miles, of railway had been laid down, and were in actual working. Much more is in contemplation; for the government has conceded rights of railway-making to the extent of 12,000 kilometres, or 5000 kilometres more than are now in working. If the national ardour for these investments should continue as at present, it is probable that the whole of the concessions already given will soon be carried out; for the progress in French railways has usually been not less than from 600 to 700 kilometres a-year. It appears that, during 1854, 601 kilometres, and, during 1856, 674 kilometres of railway were constructed.

We find no statement for the intervening year. These figures certainly supply a striking indication that the war of 1854–56 did not cripple French domestic industry.

The total cost of French railways, up to the 1st of January last, was 3,000,000,000 francs, or L.120,000,000. Of this sum four-fifths, or L.96,000,000, was contributed by individuals, and the remaining fifth, or L.24,000,000, by the State. It appears, also, that, so largely has railway activity increased during the last few years, not less than L.36,000,000, or about *two-sevenths* of the whole, were spent during the years 1855 and 1856. We cannot but suspect, however, the inaccuracy of these figures; but it can hardly be doubted that there is wealth enough in France, when the present railway mania of that country shall have subsided, to effect considerable progress in agricultural reform. It appears to us that, if there cannot be great individual landholders in France, there may be great collective landholders; and that the experiment of relieving the poverty arising from the subdivision of the soil, by encouraging a system of joint-tenancy, in the shape of *agricultural companies*, is well worth a trial. The companies might be endowed by government with a power of purchase, subject to valuation; or if such general rights should trench dangerously on the prepossessions of the petty landholders, there is no doubt that voluntary sales might be effected on terms which a broad-backed company could afford to agree to.

6. The French religious establishment, and the French system of national education, claim attention in this general view of the condition of the French people, even though they are distinctively connected with the present dynasty. The French Government is not tolerant of divergence from its recognised bounds of religious belief. It ought, however, to be remembered to what differences of opinion those bounds extend. In the first place, France is not, like our own, a nation recognising an aristocracy of religious opinion. The believers in transubstantiation, the believers in consubstantiation, and one class of *dis*believers in Christianity altogether, are equally included in the religious establishment. France acknowledges four distinct systems of religion—the Roman Catholic, the Lutheran, the Calvinistic, and the Jewish; and its government pays the stipends of the ministers of each of these four systems.[1]

The position of the Lutheran and Calvinistic Churches in France is one of great advantage. Nothing, perhaps, can better attest the religious liberality of the State, which, meanwhile,

[1] The toleration would be perfect, if free action were permitted to Dissenters from these great religious bodies.

professes to be itself Catholic, than the fact that it not only establishes other churches on an equal footing with that of its own faith, but pays higher stipends to the clergy of the Reformed Churches, than to the priests of the Roman Catholic. This difference is based on a recognition of the fact, that the Reformed clergy are men usually of much better origin, and almost invariably of far superior education, to the Catholic priests. The government is thus willing to sustain the social and educational distinction which has long subsisted between the two religious orders.

Their difference in point of education is readily explained. Our readers are no doubt more or less acquainted with the French academical system, under which there exist the four universities of Paris, Poictiers, Toulouse, and Montpellier. These universities, again, are parted out into colleges, scattered away from the seat of the parent or metropolitan university; and there is commonly one college in every department, in direct connection with its central university. The curriculum of academical education commences with the college, and concludes with the university. It is in this scheme of instruction that men designed for the ministry of the two Reformed Churches participate. The Romish Church, on the other hand, educates its clergy in its own ecclesiastical seminaries, in which the curriculum of education is very limited, and its expense very inconsiderable. This course is pursued by the latter community, partly, perhaps, on pecuniary grounds, but chiefly no doubt in order to maintain for itself entire control over the system of education adopted. The marked inferiority of the Romish priests to the Reformed clergy is therefore no matter for surprise.

No one who, after attentive personal observation, contrasts the clergy or laity of these two main divisions of the ecclesiastical system of France, can fail to see in the Reformed communities the chief hope of the social and religious regeneration of France. The learning and the moral excellence of their clergy supply just that influence which a Christian ministry ought always to possess. The effect of this character may be traced and reflected in the character of the laity of the Reformed communions. Those who know them will not describe them otherwise than as sincere and intelligent believers in their faith; while it has always appeared to ourselves that the great majority of the Romish communion either disbelieved in their nominal professions, or had surrendered their reason to religious sentiment and religious enthusiasm.

The charge upon the French Exchequer for the four religious establishments of the State in 1857, was 45,000,000 francs; and the charge for public instruction 14,000,000 francs. The total

is L.2,360,000 of our own money; and we are glad to perceive that, during the last few years, both the religious and educational charge has increased—the former by a million francs annually, the latter by about half that sum. Of course, 14,000,000 francs, or L.600,000, is a sum very insufficient in itself for the education of the French people; and, in France, it is one of the many evils incident to so complete a system of centralisation, that the fact that the State assumes so many burdens to itself, tends to repress a sense of private responsibility and obligation. The French Government, if it be predisposed to a pacific policy, will certainly find ample scope for the expenditure of its superfluous revenues in educational as well as in agricultural interests.

These observations may suffice to indicate the general position of France in its leading pacific relations. Our own countrymen have, no doubt, taken more interest in the question of its military establishments. That question, however, is one which has been here reserved for more brief discussion; both because the British public are, in all probability, better acquainted with the naval and military power, than with the domestic resources and domestic interests of the French Government, and because the latter considerations enter hardly less largely into the question of the prosecution of a policy of peace or war. We have seen that the permanent prosperity of France can only be attained by the maintenance of a pacific attitude towards the great Powers of Europe—that the Government is occupied with the prosecution of domestic interests, which the rupture of any one of its chief external relations would destroy—that, while the existing application of the French revenues could scarcely be changed, with a view of increasing the means of war, the extraordinary expenses of 1854-56, were derived in so great a degree from loans, as to indicate the impossibility of much additional taxation—that a rupture with this country, during any considerable period, would pre-eminently compromise both the maritime commerce of France and her supply of precious metals—and that the unnecessary adoption even of territorial war would destroy that belief in the pursuit of French domestic interests, which constitutes the moral foundation of the imperial dynasty. But, at the same time, the extent of the French naval and military armaments is so much more than commensurate with the contingent danger either of foreign aggression, or of domestic revolt, that it becomes necessary to inquire for what purposes they are designed, and what consequences they may produce.

7. The French army may, perhaps, amount to 400,000 men. No very recent returns of an exact description have reached us. It appears that, in 1853, before the commencement, or even the

imminence, of the Russian war, their muster-roll enumerated 373,000 men. We have reason to think that, since the conclusion of that war, the army has been approximately reduced to its number before the war. Granting that 70,000 or 80,000 may be stationed in Algeria, and some 10,000 in other transmarine colonies, there remain about 300,000 engaged in home service. In this computation, we assume that such returns of the French army as we possess are *bonâ fide* returns; and that, in a period of peace, the proportion of invalided troops is extremely small. At the same time, we are aware that continental governments have occasionally succeeded in dissembling on the subject, both of their numbers and of their condition, in an extraordinary degree. It is well known that, when the Russian General Diebitch enforced the stipulations of Adrianople, in 1829, the Turkish Government supposed him to be at the head of a large army in the field, whereas he had but 6000 men. It is well known that Austria, though supposed to be at the head of an immense force, during the War of Independence, in 1813, never brought 50,000 men at any one time into the field. It is well known that the French army, though supposed, during the Crimean War, to be in possession of comforts from which our army was debarred, suffered more severely than ours. It would not, however, be so easy to misrepresent the number of an army cantoned, during a state of peace, in a country accessible to the subjects of every nation; and the internal evidence of general fidelity, which French official documents display, does not warrant a belief that the French Government, like the Austrian and the Russian, parade a paper force to support their foreign policy.

Of the 300,000 troops thus computed to be on home service, it is believed that nearly one-half, or nearly 150,000, are in condition to act in any foreign expedition. At the back of this array is the conscription, which, without any violation of the constitutional laws of France, enables the government to draw 80,000 men annually for the recruiting of the army—and so great were the contingent necessities of the Crimean war in 1855, that the conscription was raised prospectively to 140,000 for the following year. The system of recruiting, during peace, is, even proportionately, much more rapid than in our own country, in consequence of the unpopularity of military service. It appears that, in 1853—the latest year to which the duration of peace enables us to calculate with preciseness—of the army of 373,000 then on the French muster-roll, only 44,000 had seen seven years's service. The conscription extends to that period; and, after the lapse of seven years, the continuance of the same soldiers in the service is the result of voluntary enlistment. It

was the effect of this system, that the French Government never possessed an army of veterans, and their troops withdrew when the greatest reliance could be placed in their efficiency.

In order to counteract such a tendency, the War-Office has lately offered not less than *one thousand* francs to every soldier re-enlisting after each service of seven years, together with an increase in daily pay, on the first re-enlistment, and a further increase on the second. By these means, it is expected that fourteen, and even twenty-one years' service, will become no uncommon event in the French army. The expedient does not involve the pecuniary sacrifice which it may seem to do; for military training, and some other expenses incident to a first enlistment, are thereby saved in an equal proportion. The corresponding reduction in the amount of the French conscription will also lessen its unpopularity, just as the cause of that reduction will add to the experience of the army.

Now, it is obviously the object of the successive French Governments which have developed and fortified the port of Cherbourg, to render it as easy for a French army to cross the Channel as it has always been easy for such an army to cross the Rhine. Cherbourg is not to be explained away as a work of defence, even though it is true that France has no other arsenal in the Channel between Boulogne and Brest. If Cherbourg had been built chiefly for a defensive port, its construction would have materially differed from what it actually is. It bears but a faint resemblance to either of the four chief naval arsenals of France—Brest, Rochefort, L'Orient, or Toulon. Those naval and military officers who have inspected its docks, declare them to be constructed with the special view of embarking a great army with extraordinary promptitude. In the event of a rupture between this country and France, it is unquestionably to be apprehended that a fleet of steam transports, supported by a convoy of line-of-battle ships, might be collected at Cherbourg, and an army of fully sixty thousand men be embarked within twenty-four hours of a declaration of war. Such an expedition might be directed against Ireland, or against the coast of Sussex or Hampshire, with a view of seizing Portsmouth, or even London. It would then become our aim to intercept this expedition by means of a superior fleet; and, failing in this interception, to be prepared to encounter a French army upon our own soil. We have supposed the invading force to be 60,000 in number; but, if the French Government could rely on the neutrality of the German Powers, they could probably double its number without any addition to their present military establishment. And, if the transports at their disposal were insufficient to convey a larger force than 60,000 men at any one time, a second army might

be shipped, and disembarked on these coasts, within a few days of the disembarkation of the first.

All this, of course, presumes either the naval ascendancy of the enemy in the Channel, or their fortune in eluding the vigilance of our fleet, or their rapidity in anticipating our naval preparations. The realisation of *any one* of these three contingencies would unquestionably bring a French army, in such circumstances, on the British coast.

We have already expressed our belief, that neither the domestic interests of France, nor the professions of the present Emperor, will be sacrificed in favour of such a daring enterprise. All that we believe Napoleon to design is, the attainment of such a superiority as may enable him to hold high language to this and to other governments, whenever interest or policy may differ. But such language might lead to recrimination, which the public spirit of neither country would brook, and from which either government might find it impossible to recede. Moreover, no political calculations can be safely based upon individual life; nor can any man predict the astuteness of the policy, or the fierceness of the passions, which might become dominant in France, even five years hence, under a new ruler, and perhaps also a different polity.

The two chief precautions against this contingent danger, even though we acknowledge that so rapid a change in our relations with France is not supported by a balance of probability—are to be found, first, in our naval and military defences; and, secondly, in our foreign alliances. The method in which we have resolved to gain adequate security at the least possible expense during peace, is that of the maintenance of a large force of reserve in either service. Lord Palmerston's Government addressed themselves, on the conclusion of the Russian war, to this object; and we believe that we are strictly accurate when we say, that the name of Lord Palmerston individually is associated with every recently constituted element of defence which now exists in this country.

The precautions devised by Lord Palmerston's Government after the peace of 1856, were of three principal kinds. It was first their aim to consolidate the militia into an efficient army of reserve, equal to an encounter with the trained legions of the Continental Powers. And few military officers will probably dispute, that that force, which was first resolved on at the instance of Lord Palmerston, when he held the seals of the Foreign Office, which was organised according to his views, accepted by the House of Commons, at the expense of the existence of Lord John Russell's Administration, and which, on his accession to the premiership, he found little better than a rabble,

is now one of the chief and most reliable defences of our soil. In the second place, the late government organised a system of naval reserve, which had for its aim the maintenance of a force, in men, and in ships advanced for commission, sufficient to form a large channel fleet at almost a day's notice. In this object Lord Palmerston's Ministry were engaged until their resignation during last February; and we regret to find so little reason to believe that this defensive organization, which is essential to the security and to the international independence of the British empire, has been pursued by Lord Derby's Administration.

In regard to our foreign alliances, there are, no doubt, three distinct courses to be pursued, with regard to our domestic security,—the maintenance of the Anglo-French alliance is the first in importance; the creation of a friendship between this country and Russia is the second; and the union of Austria and Prussia into a common alliance with ourselves is the third. Two out of these three courses have obviously formed the chief springs in the policy of Lord Palmerston and Lord Clarendon. The French alliance was created by the former statesman twenty-eight years ago; and it was developed by him and by Lord Clarendon during the Russian war. But since the divergence of France from this country on the question of the Isle of Serpents and Bolgrad, rendered it necessary to establish a counterpoise to the event of an alliance between France and Russia, the cultivation of the friendship of Austria and Prussia is understood to have been earnestly pursued by the late cabinet. Few objects are now of greater moment to the independence of Europe than the integration of Germany by a diplomatic union between those two Powers.

The latter of these three courses—namely, the pursuit of an alliance between this country and Russia—has, perhaps, its distinctive representation in the Marquis of Clanricarde. Such a policy has certainly been founded on this just assumption, that, in the event of a rupture between Great Britain and France, Russia is the only power in a position singly to ally herself in arms with ourselves. And, until the union of Germany shall be complete, these views must always be maintained; for our experience of the Crimean war evinces that no confidence can be reposed in the active co-operation of Austria in our behalf, without the unequivocal support of the whole Germanic Confederation. It is true that the foreign policy with which Lord Clanricarde's name has been associated, is fraught with much difficulty in practice; and the recent and undoubted political intrigue of the Russian Court at Villa Franca, indicates that the encroaching policy of that government has not been buried in the ruins of Sebastopol. But as this spirit of encroachment did

not prevent the salutary union against France of this country with Russia in 1840, even upon a great Turkish question, much more may it, at a future time, be compatible with such a union in a maritime war.

But, subject to all these reservations, the maintenance of the present union between Great Britain and France must be the cardinal aim of our own age; and there is no course by which it is more likely to be attained than by adding to an existing reciprocity of commercial interest, an approximate equality in military and naval power. To preserve the French alliance, and yet to provide the means of resisting French agression, are now acknowledged to be the chief objects of our policy. Yet it happens, by strange inconsistency, that Great Britain has, at this moment, contrived to dispense with the services of the statesman who is the author at once of this system of defence and of that principle of alliance. Lord Palmerston's Government was broken up by a combination of those parties in the Liberal ranks, who, if true to their professions, were, beyond all others, indebted to its policy. Though opposed by the Peace Party, it was nevertheless Lord Palmerston, who, by creating and maintaining, during nearly thirty years, the Anglo French alliance, had long preserved the peace of Europe. Though opposed by the advocates of freedom abroad, it was he who had been the champion of Parliamentary Government in almost every State. And though opposed by men like Mr Roebuck, whose policy it now is to demand security against invasion, it was he who organised our national defences. The principles by which Lord Palmerston generally regulated this alliance, under three distinct forms of government, and amid an infinite complication of events, are those on which only it can be maintained; and, in this respect, each successive administration must, in a greater or less degree, be the organ of his policy.

ART. II.—1. *Rig-Veda-Sanhitá, a Collection of Ancient Hindu Hymns.* Translated from the Sanskrit by H. H. WILSON, M.A., F.R.S., etc. London, 1850–57.

2. *Rig-Veda-Sanhitá, ou livres des Hymnes.* Traduit du Sanscrit par M. LANGLOIS. Paris, 1851.

3. *The First Two Lectures of the Sanhitá of the Rig-Veda, with the Commentary of Mádhava Achárya in Sanskrit, and an English translation of the text.* Edited by Dr E. ROER. Calcutta, 1849–55.

4. *Yájnavalkya's Gesetzbuch, Sanskrit und Deutsch.* Herausgegeben von Dr A. F. STENZLER. Berlin, 1849.

5. *Sacoontalá; or, The Lost Ring.* Translated into English Prose and Verse from the Sanskrit of Kalidása, by MONIER WILLIAMS, M.A., etc. Hertford, 1855.

6. *Vikramorvasi.* Translated into English Prose by EDWARD BYLES COWELL. Hertford, 1851.

7. *Málavika und Agnimitra,* aus dem Sanskrit ubersetzt von ALBRECHT WEBER. Berlin, 1856.

WE have had a firm footing in India since the cession of Bombay in 1668. The formation of a native army under British control in 1757 enables us to say, without exaggeration, that we have occupied the Indian Peninsula for a hundred years, and yet the key to the mysteries of the conquered country has but recently been handled, and is even now scarcely turned in the lock.

We speak of the language and literature of India. Of course, we can only mean one language. Hindi, Hindustani, Tamil, Telugu, Bengali, and others of its many modern dialects, have their literature, their grammars, their dictionaries, and commentaries; but even where these languages are in no way connected with the Aryan stock, the subjects of their compositions are all referable to those of the one language of which we speak—Sanskrit.

It is no insult to our readers to explain what Sanskrit really is. A language which is not only dead, but the very spoken existence of which at any time has been doubted by some of its most zealous students,—a language which has no national name, but is known to all only as Sanskritá-Vách, the "Perfect Language,"—which, lastly, is the vehicle of the older literature of almost every part of India, is an anomaly difficult to define.

The language of the earliest literary productions of the Hindus, the sacred Vedas,—to which dates varying from 1200 to 2000 years B.C. have been ascribed by different scholars,—is not properly Sanskrita, the Perfect Language, but its extremely

imperfect and irregular parent. Again, from the facts, that Piyadasi, a Buddhist monarch of the third century B.C., desiring to exhort the peoples of India to peace and morality, set up inscriptions in the eastern, northern, and south-western regions of India, in a language and character presenting very slight dialectic variations, but certainly not Sanskrit though allied to it; and that another king, Asoka, having defeated Antiochus (B.C. 206), graved an account of his victory on certain rocks in the Prakrita, that is, the "Common," the "Enchorial," not the "Perfect" and exclusive dialect,—we gather, that at that period at least, Sanskrit, if spoken at all, was confined to the educated castes, the Brahmans and Kshatriyas. We have, however, we believe, sufficient proof that Sanskrit was at one time spoken by all classes in certain regions of India, and was to a late period the vehicle of daily conversation among the educated.

For the former of these assertions we have the Epic in evidence. Two great epics were composed in India at a very early date, and both have as much a national character as the Iliad, the Nibelungen, or the Sagas of Scandinavia. Whatever may be thought of the Rámáyana, which is a complete poem, having one subject throughout and a uniform character, there can be no doubt that the Mahábhárata is a collection of ancient lays of different dates, and different qualities as poetical compositions. We see little doubt to discredit the Puranic legend, that the Mahábhárata was the subject of various recensions, and that, therefore, at one time its language may have been older in form than that which has come down to us; but even of this last recension the date can scarcely be fixed later than the third century B.C., and should probably be put back at least two centuries. Such an epic as this, consisting of popular legends, cannot but have been in the mouths of the people, describing as it did a great national struggle of their ancestors, which we have now reason to think took place shortly after the Vedic period, before the immigrant Aryans had entirely quitted their north-western settlements. But if such were the case, then Sanskrit was the common language of the whole Aryan people at some period between that when the Veda hymns were sung at each man's morning sacrifice, and that when Piyadasi found it necessary to address the people in debased dialects,—at some period, in short, between the twelfth and the third century B.C.

The drama, on the other hand, presents the singular feature of two languages, holding somewhat the relation of Latin and Italian to one another, spoken in the same play, before the same audience. The male characters of superior caste here speak Sanskrit; the females, and those of inferior rank, Prakrit. Now we know that the drama was represented only before monarchs,

chiefs, and Brahmans, or, at least, intended for their amusement only. We cannot suppose that they could find entertainment in a language which they did not understand, or had only studied as a dead tongue. The Westminster boy may be able to laugh at the jokes of the Adelphi or Phortrs which he has coached up during the preceding year; but Vikrama and his court, if Sanskrit was not their common language, would have been poorly amused at the mirth of a Vidushaka, whose part had been written in that dialect only just before it was acted, and in a play never represented again in the same district.

We may, therefore, premise that Sanskrit, in all its perfection, was at one time—probably between the eighth and fourth centuries B.C.—the *spoken* language of that race which immigrated into India from Central Asia, and to which modern Orientalists give the name of Aryan; that its very perfection was a drawback to its popularity; and that it was in time replaced, among the lower orders, by easier and less regular forms, and a less complicated grammar, but was retained as the vehicle of conversation among the educated classes until at least the third century after Christ.

The systematic character of the Aryan race must account for the completeness of their language. The alphabet itself leaves nothing to be desired. Different characters are used for the long form of each vowel, and the aspirated form of each consonant; of its seven vowel sounds, two—E and O—are here properly set down as diphthongs; to each of its five classes of consonants, beginning with those articulated in the throat, and ending with those pronounced by the lips, a regular nasal is attributed; and modern grammarians now admit that there are in reality five—if not six—kinds of nasals, though we have hitherto comprehended them under two forms only. Again, the right to compound any number of words together,—the value of which in a far less degree is fully recognised in German,—gives the language the power of continually renewing itself, and adapts it to the requirements of the most progressive civilisation. Every verb may be conjugated in a causal, a desiderative, and a frequentative form,[1] so that one root may be developed so as to express a very numerous variety of ideas; and, indeed, the powers of derivation are so great, that the whole language, which certainly does not contain less than 50,000 simple words in common usage, may be reduced to less than 2000 roots of one syllable,—many of them, indeed, of one letter only.

Such capabilities and such regularity cannot fail to interest

[1] And these again in each several form. Thus, from the simple root *bhú*, to be, we have a verb *bobhúyayishayati*, "he causes the wish to occasion frequent existence," regularly derived and uncompounded.

the grammarian; and it is no exaggeration to affirm, that many grammatical problems that have long puzzled the world have been solved by an introduction to this perfect language.

But Sanskrit has a far more important interest than this, if only viewed as a language, and independent of its literature. Although the latest researches have exploded the theory, that it was the actual parent of that large stock of languages which goes by the name of Indo-European, and extends from Hindustan to the Americas—comprising Zend, Persian, Afghan, Armenian, Greek, Latin, and all their progeny, the Celtic, the Sclavonic, the Teutonic, and Scandinavian families, the languages of the whole Japetic branch of mankind—in short, the great literary vehicles of the world (excepting only, of course, Arabic and Chinese)—it is not denied, that while it is the actual parent of some, as the Teutonic and Sclavonic families, it is certainly the eldest brother of, and presents older and more original forms than, all the rest. It is, in short, the language which must have been first separated from, and therefore most closely resembles, that primeval form from which all the Japetic stock is derived; and, as such, is of great importance and interest to the student of philology.

The value of a study of Sanskrit, however, is not to be measured by the advantages gained from it to Comparative Philology. The classical literature of India, which undoubtedly holds the place next to those of Greece and Italy, has a high value and a deep interest, both independently and in its relation to that of other countries. We have here the phenomenon, so rare throughout the world, of a spontaneous civilisation, owing nothing or very little to external influence,—a civilisation sufficient for the necessities of its age, and not exhausted. The literature, through which alone this is now approachable, must therefore be full of interest because of the light which it casts on the history of the human race.

The mythology of India has explained that of Greece and Scandinavia. Jupiter and Thor are no longer mere personal divinities, mere substantial representatives of a revealed God. Indra, the electricity in the firmament, that rides upon the clouds, that shivers them with his thunderbolt, and lets loose the collected waters within them,—Indra, who is nothing more than the impersonation of the commonest phenomena of the skies above our heads, explained them both; and we now learn to derive all polytheism from the personification of a few elements, and to connect these again with original monotheism.

The philosophy of India, on the other hand, displays at once the simplest and most refined aspects of Pantheism; and men like Frederick Schlegel and Victor Cousin, in spite of the poverty

of resources at their command, have not hesitated to record their admiration at the lofty, yet well-controlled theories of Kapila, and the acute system of Gautama.

But the study of Sanskrit rises from a mere interest to a great duty, when, as Englishmen, we reflect on the responsibility that our Indian empire entails upon us. No people that has come under our control has given us so much trouble to understand, and therefore to rule judiciously, as the Hindus; no nation is so firmly bound by tradition, or so devotedly attached to the wisdom of its ancestors. No people, in short, is so easily comprehended through its literature, yet so utterly incomprehensible without it. The fact is, that since the decline of their grandeur, since the turning point of their civilisation, when the smaller kingdoms of Northern and Central India were merged into the grand empires of the Vikramas and Bhojas, the Hindus—ere long brought under the yoke of the Mussulman, so utterly opposed to all internal progress—have been living over again, as it were, their former civilisation, and learned to invest with a character almost sacred every production of those halcyon days. It was now not only difficult, but scarcely permissible, to conceive and produce an original work. The few that appeared were, like the Puránas, built upon the literature of the classical age, or plentifully interlarded with quotations as a guarantee for their orthodoxy. Translations there were, and a few adaptations now from Persian, Arabic, and even Greek literature; while foreign legends, and even Christianity, were grafted upon the original stock of Hindu fables. But nothing flourished so much as commentaries. It was only natural that the Vedas, the philosophical Sutras, and even the Laws of Manu, should be explained by the learned; but, besides these, we have commentaries on grammars, commentaries on vocabularies, commentaries on commentaries themselves.

Thus the Hindu of to-day, if he has shamefully deteriorated from the Hindu of the early ages, from the Kosala and Videha of the third cent. B. C., and even from the bold Arya of the Vedas, is influenced by much the same motives, uses almost the same laws, the same worship, and clings tenaciously to the same errors, which every day, by lending them age, renders more difficult to remove. We might as well attempt to understand the Hebrew Rabbi without Moses, as the Benares Brahman without Manu and the Vedas; and the same vantage-ground that we gain over the one by a study of the Old Testament, we are confident may be, and is already being obtained, over the other by a profound and critical examination of their religious authorities.

Nor would these advantages be confined to facilitating con-

version, much as that is to be desired. A better knowledge of the laws and religion which influence and, indeed, completely mould the Hindu character, would awaken a mutual respect between the Hindus and their rulers, which would tend greatly to the establishment of permanent tranquillity. No English gentleman would willingly offend the prejudices of his Jewish neighbour, or servant. He would not force him to work on Saturday, nor starve him because he refused the hated swine's flesh. Yet cruelties as vulgar as these are continually practised by English officers and English officials towards the natives of India, and that simply because he cannot appreciate the laws, a reverence for which have become to the Hindu a second conscience. But while our missionaries are inculcating the brotherly love and the peace of Christianity, the lie is openly given to their preaching by the useless brutality which English officials, nay, even English ladies, by their own confession, consider it necessary to employ towards their native dependents. We are far from desiring to see a foolish indulgence displayed towards the prejudices of caste; and we are confident that the weak yielding of successive governments, in this respect, has been the indirect cause of every mutiny in our native army from 1782 to the present day. But if Christianity is ever to become general in India, we must convince the Hindus of its practical value by our own behaviour; and this will not be effected until our civil servants are taught to understand the subjects over which we set them, and that through the medium of their literature.[1]

Our earliest modern information on Sanskrit literature came, as we might expect, from the French Jesuits, who, with their usual shrewdness, saw at once that this was the channel through which alone these reserved and mysterious Orientals were to be approached. Letters from these missionaries, written in the early part of last century, were published among the "Lettres Edifiantes," in 1780; and though the information they contain is often erroneous, always unsatisfactory, it suffices to show that their writers had succeeded in fathoming some of the most cherished mysteries; and, indeed, the knowledge they acquired enabled them to compose a Veda of their own, somewhat in the style of the sacred works of the Hindus, in which the doctrines of Christianity were ingeniously put into the mouth of the most favourite native saints and deities! In 1765, Warren Hastings induced eleven Brahmans to draw up an epitome of the principal law books, with a view to assist the British in administering the

[1] As Haileyburg is now defunct, we will not say more here than that we know from personal experience that the examinations in Sanskrit were treated by the greater portion of the students at that college in such a manner, as to be no test whatever of their acquaintance with that language.

native law; but the language still remained known to a few only, who, with the aid of Pandits, studied it from curiosity. Among these was Charles Wilkins, who, in 1785, had the honour of publishing the first translation from Sanskrit that was imported into Europe. This was one of that strange medley of Brahmanism and philosophy, of rigid ethics, mystic Pantheism, and wild speculation, clothed in majestic metre, the Bhagavadgítá, or Sacred Lay,—the poem which, more than any other, the Brahmans look upon as only inferior to the Vedas, and which, as the visitor to the British Museum will have observed, they delight in writing upon yards of narrow ribbon, which they can wind conveniently round a stick or reel, to carry about their persons. Indifferent as was Wilkins' translation, it sufficed to excite among the learned of Europe no slight curiosity as to the philosophy of this subtle race; and the two Schlegels took it up in Germany, the one employing it liberally for his Essay on Indian Philosophy, in 1808,—the other producing an edition of the text, with a Latin translation, in 1823, which G. v. Humboldt afterwards made the subject of a clever Essay.

Sir William Jones was, however, the first man who thoroughly mastered the language; and, like Wilkins, he was fortunate in selecting one of the masterpieces of Hindu literature for translation. In 1789, he gave to Europe an elegant prose version of Kálidása's Sacuntalá, a play which excited Göthe to rapture, and led Chézy to learn Sanskrit. This play has, perhaps, been oftener translated than any other Sanskrit work. Chézy put it into French; Hirzel, Böhtlingk, Ernst Meier, and Lobedanz, succeeded one another in rendering it into German prose or verse; while Mr Monier Williams has given us the charming translation in mingled verse and prose, after the manner of the original, of which we shall presently speak at length.

Nothing more of any merit was achieved during the last century in this direction. Before its close, however, were published the first volumes of a series, which has been, and still is, of infinite value to the Indianist, containing, as it does, the studies of the best scholars, who enjoyed the advantage of residence in India, and intimate intercourse with the most learned of the natives. The Asiatic Researches commenced in 1788, with Warren Hastings as patron, and Jones and Wilkins on the committee, and concluded with its 20th volume in 1839, during which period the best English students of Sanskrit had been its contributors. We have now an Oriental or Asiatic Society in almost every country of Europe; and most of these, besides publishing a journal, in which the sacred language of the Hindus receives its due share of attention, are engaged in the reproduction of texts, the cost of which would be too great for private

individuals. In England, besides the direct grants from the East India Company, we have an Oriental Texts Society, which numbers among its Sanskrit texts the Sáma Veda, edited by the Rev. G. Stevenson; the Oriental Translation Fund, which has published about a dozen translations from Sanskrit; and the Royal Asiatic Society; while in Calcutta a rapid succession of productions, comprising the most valuable portions of Vedic literature, the Puránas, etc., has, since 1849, taken place under the auspices of the Bengal Asiatic Society, with Dr Röer as manager; and it is cheering to find that the most enlightened Bráhmans have heartily co-operated in thus bringing the works of their ancestors beneath the test of European criticism. The present century, and particularly the last thirty years, has seen a rapid progress in the study of Indian literature; and we calculate that not less than 130 Sanskrit texts, and translations from 80 of them, have appeared since its commencement.

The students of Sanskrit in Europe and India may be divided into two classes,—those who have studied in the East, and those who have studied in Europe. The former have, as it were, smoothed the path for the latter, who again have done their best to make the results of their studies popular. Jones, Wilkins, Colebrooke, Wilson, Röer, Ballantyne, and Stevenson, are of the former. Under the latter head come Schlegel, Lassen, Rosen, Roth, Weber Benfey, Bopp, Bohlen, Böhtlingk, and many others, in Germany; Williams, Johnson, and Byles Cowell, in England; the celebrated Burnouf, Chézy, Langlois, and Pavie, in France. In Italy, Gorresio, the translator of the Rámáyana, stands alone; while little Greece has had one scholar, Dimitri Galanos, who, having studied for many years at Benares, where he died, left valuable translations behind him.

Having thus briefly sketched the progress of Sanskrit studies, and premising that, in spite of the labours of so many diligent scholars, much, very much, remains to be done before we can affirm that we understand Sanskrit literature entirely, or could sit down to write its history, we now proceed to examine some of the principal fruits of these studies within the last few years.

Although we have said that the language of the Vedas was not Sanskrita, in its strict sense, there is not sufficient difference between it and classical Sanskrit to authorise our calling it a separate language. The difference is not so great as between Anglo-Saxon and modern English, but it is greater than between Homer's and Demosthenes' Greek. The nearest parallel is perhaps between Old High German of the twelfth century, and the pure Hanoverian speech of the present day. One may often, for instance, light upon a whole sentence in the Vedas which might be transferred into a work composed 500 years later, yet

not appear antiquated in construction, or obsolete in the forms of words. The difference consists rather in the use of numberless words which were lost at a later period, and in that apparent disregard of grammatical rules which invalidates the claim of the Vedic language to be called Sanskrita or Perfect,—a laxity which commentators and grammarians express by the mnemonic words, "bahulam chhandasi"—"manifold in the Veda." There is also a certain breadth about the forms and inflexions of all words; and the broader vowels, particularly the long A, are constantly found where the later language has more delicate sounds. Composition, again, had not arrived at the perfection to which it attained in the classical period. The rules of Sandhi, or the conjunction of words—a systematic element of grammar in Sanskrit, while in Greek, Latin, and French it is rather accidental, and in the first two almost confined to poetry—are here often disregarded, just as in the hiatus of Homer, which cannot be totally explained away by the introduction of the digamma, but must sometimes be regarded as a crudeness of the earlier language. Another parallel to the Homeric, and no less to the old German language, is the separation of prepositions from their verbs, and the strong adverbial force given to the former, while in the old forms of the infinitive we find undeniable traces of the inflexions of a yet earlier language; and we may, from these, hazard the conjecture, that the infinitive was not, as has been so often suspected, an old dative, but rather an obsolete *genitive* form.

The Vedas, however, are undoubtedly a portion of Sanskrit literature, whatever be their language. Their spirit runs through every subsequent composition. Their darkly tinted legends are the bases of later works; their crude philosophy is developed in every age of Hindu civilisation. They have therefore been for a long time the Ultima Thule at which every explorer of Sanskrit literature was eager to arrive; and great were the expectations entertained as to the light that they would throw on the strange theology and most eccentric tenets of the Hindus. We expected here to find the true origin of caste; here the primitive forms of the Hindu triad; here the source of the doctrine of metempsychosis; here that combination of Pantheism and Polytheism which ought to have preceded the schism of the Darsanas, or philosophical schools, from orthodox Brahmanism. We found none of these things; and it is one of the grandest results of the study of Sanskrit, that we are enabled by the Vedas to pronounce Brahmanism a gross imposition. For centuries the Brahmans have appealed to the Vedas as their authority for every error and malpractice which they maintained; for years they have met the arguments of Europeans by referring to those so-called sacred books, which they did their best to keep back

from us. "So say the Vedas," has long been the support for every doctrine and every practice. "There is nothing of this in the Vedas," has always been the argument used to confound an opponent. It has been ceded that the laws of Manu, though excellent and authoritative in one age, were not binding in all; but the universality of Vedic precept has always been insisted on, and if a principle were not found in those books, it would not be adhered to. Upon these grounds, we are now enabled to overthrow half the institutions, social as well as religious, of modern Brahmanism; and no labour has possessed such value as that given to the interpretation and criticism of those works which the Hindus assert to have proceeded from the mouth of Brahma himself.

The Vedas are generally considered as four in number,—the Rich, the Yajush, the Sáma, and the Atharva; but the last of these evidently belongs to a much later age than the rest, when the hierarchy was asserting its supremacy, and the religion had already begun to change. Besides the indications it presents of a more advanced civilisation, we find its hymns adapted to private rather than tribular, public, or even domestic worship. A mystic and magic character runs throughout it, little in accordance with the simplicity of a primitive age; and we find dark superstitious formulæ to be employed against giants, demons, disease, and so forth, and even imprecations to be used against enemies. We are often told in Sanskrit writings that there are but three Vedas; and perhaps it would be correct to say that there was originally only one, now represented by the Rich. The hymns of this Veda are repeated entirely in a disjointed form in the Sáma, and, with little alterations, in the Atharva also; while the Yajush contains principally forms of prayer. But it is curious that the same question which has been started, especially in Germany, with regard to our own four Gospels, should be also that which suggests itself in the case of the four Vedas. To the fourth, indeed, as to the Gospel of St John, we can assign a decidedly later date than to the other three, which, like the three Gospels, may be considered as synoptic. The questions, which is the earliest? and did one borrow from another, or all three from some common source, or the Yajush and Sáma from the Rich? are still unanswered, and can indeed only be satisfactorily set at rest, by supposing that no collection whatever was made of these hymns until such time as their meaning had grown obsolete, and a greater reverence was attached to them; that in the meantime they were handed down orally, traditionally explained, and used according to primitive practice in connection with the various sacrifices.

The question is not, however, of the first importance, as, whatever be the date of the various collections or recensions, it is

generally admitted that the Rig-Veda contains the oldest forms of the hymns which are found in all; and the pre-eminence given to this book by native writers confirms the opinion of modern scholars. It is therefore to the Rich that the principal attention has been allotted. A young German of great promise, attached to University College, London, as Oriental Professor, was the first to venture on the interpretation of this book; and if F. Rosen's Latin rendering was little calculated to popularise the Veda, it was at least the pioneer of more lucid expositions. In 1833 he gave us a "specimen" of his work; and in 1838 the whole of the first Ashtaka, or eighth part, was published after his death in 1837.

But between 1847 and 1850 three translations appeared almost simultaneously, as the results of the independent studies of three first-rate scholars. In India, Dr Röer published a good literal rendering of the first two chapters of the first Ashtaka. In France, a most adventurous and indefatigable student, the late M. Langlois, gave us a free French version,—too free, indeed, to be of much value to the student, but, as conveying for the most part the true sense of the hymns in readable, nay even poetical diction, well calculated to interest the general reader. A little later, our own chief Indianist, Horace Hayman Wilson, produced the first volume of a translation which will undoubtedly be the text-book of all future students.

The difficulty of these labours can scarcely be overrated. It is not that the text presents many variations. We have no MSS. earlier than the 16th century; and by that time, if not long before, the reverence attached to every word of the Vedas must have fixed the readings unalterably, while copyists have, in transferring such a work, been always too careful to raise difficulties by their mistakes. Again, the Commentaries—of which those of the two brothers Mádhava and Sáyana, in the 14th century, are the most esteemed—repeat every word of the text, with its signification appended; so that the real difficulty lies in discovering first the true meaning of the words themselves, next the sense of each sentence. What this difficulty is, may be inferred from the words of Dr Max Müller, after twelve years' indefatigable study of his subject:—"Words, verses," he says, "nay whole hymns, in the Rig-Veda, will and must remain to us a dead letter."

The extent, too, of these books adds considerably to the labour of the interpreters. Roth has calculated that the mere Sanhitá or metrical portion of the Vedas, as distinguished from the Bráhmana or later ritual appended to each, contains not less than 30,000 couplets, of which 11,000 go to the Rig-Veda. In the splendid edition of this book which Dr Müller is producing at

the expense of the E. I. Company,[1] little more than half the Sanhitá, with Ságana's Commentary, occupies little less than 3000 pages of large quarto.

But perhaps the greatest difficulty lies in the obsolete words. In spite of the ancient Nirukta or Vedic glossary of Yáska, in spite of Pánini's valuable interpretations, in spite of direct and indirect commentaries, there are many words to which it is impossible to attach a satisfactory meaning. Sometimes the commentators content themselves with a signification which, however correct in its derivation, throws no light on the sense of the passage. Such a word is *Siprin*, which is interpreted to mean "having a prominent nose or jaw;" but which we find applied indifferently to Indra, the king of gods, to common mortals, and to fourfooted beasts. Sometimes they give us two or three meanings, leaving us to choose which we will. A striking instance of this ambiguity is the word *Swarya*, which the scholiasts concur in rendering by "that which can be well sent (*sushthu preraníyam*), or noisy (*sabdaníyam*), or praiseworthy (*stutyam*)." The word is an epithet of Indra's thunderbolt, and each translator has adopted a different equivalent. Wilson, evidently thinking of the darts ἑκατηβόλου Ἀπόλλωνος, has preferred the first, and translated *swarya* by "far-whirling." M. Langlois, adopting the second, gives the equally appropriate meaning "*retentissante;*" while Dr Roër has the third, "praiseworthy." We have no means of deciding between these disagreeing doctors. Westergaard, a good authority on roots, but who wrote in 1841, when the Vedas were little understood, gives, as the meanings of the root *swri*, from which *swarya* is derived,—1, *sonare* (comp. the German *schwören*, and our own *swear*), as the common meaning; 2, *laudare, cantare*, as the Vedic signification; 3, *ire, se movere*. Wilson, in the 2d edition of his Dictionary, gives, "to sound, be diseased, pain or torture." The quotations from the Rich support the sense of "praiseworthy," which is apparently the least suited to the context. Now, it matters little whether a thunderbolt be spoken of as fleet, noisy, or worthy of praise, but it does matter much that the translators of the Veda should be able to arrive at more definite conclusions with respect to single words, which, in language so elliptical, yet so revered as that of these books, may often be of sufficient importance to confirm or annul a whole branch of philosophy, or a whole system of law. We know, for instance, that by restoring the true reading in a single sentence, Prof. Wilson has taken from under the feet of the Brahmans the only text upon which they stood to support the suicide of widows,—a discovery which would have saved India

[1] It is much to be desired that the Government will continue this and similar liberal grants made by the late Company.

its disturbances in 1835 and 1838, had it been known to Lord W. Bentinck when he abolished Suttee.

The three translations are, then, all worthy of commendation, at least for diligence; but while we cannot but deprecate the independence of scholiasts, and extreme freedom which distinguishes the arbitrary renderings of M. Langlois, we must deplore the prosaic and too scholastic tone of the other two. When once the meaning is ascertained, the diction of the Vedas is by no means difficult to turn into elegant and even poetic English. The sentences are short; the language bold, broad, and nervous; the ideas original, often poetical, always lofty. It is peculiarly full of simile, of startling freshness and spirit. Thus, the early dawn is described as follows:—

"Westward she goes as a brotherless maiden seeks the men of her kin;
And as one mounts the hall of justice to recover stolen goods;
Like the wife that yearns to charm her spouse,
Dawn decks herself in pleasing garb, and smiling, as it were, displays her charms."

"The youthful dawn approaches from the East;
She yokes her team of purple oxen."

"Dawn, like a barber, shears the thickened gloom;
And bares her bosom as the cow her udder yields;
And as the cattle hasten to the lea, she westward speeds,
And shedding brilliance o'er all the earth, drives back the night."

The similes are, it is true, sometimes ridiculously forced, as in speaking of the god of fire, Agni:—

"At whose worship the priests pour the dripping butter on the flames,
And the drops mount the fire, as though they were its many children, just as boys upon a father's back."[1]

It is quite possible to give the literal sense, and even the proper order of the words, and yet retain the spirit and warmth of the original. We shall now give a specimen of this, which, at the same time, is perhaps the most spirited hymn of those yet published. It describes the contest of Indra, the lord of thunder, with Vritra, otherwise called Ahi, the personification of the rain-cloud. Those who know India can well appreciate the joy that welcomes descending showers upon the parched and heated fields, and understand how the cloud which is supposed to imprison the waters is regarded as a demon, while the lightning that cleaves it, and sets them free to descend on earth, is worshipped as a beneficent deity:—

"Of Indra now, the ancient mighty deeds, which he, the thunderer, achieved, I sing.

[1] So the scholiast, but the passage is obscure.

The cloud he slew, then spilled the waters. He broke (channels) for the mountain-streams.
He slew the cloud that slunk back to the mountain. Twashtri[1] had made his rattling‡ bolt for him.
As to their calves do cows, the flowing waters hurried to the sea.
Like a bull, he sought‡ the Soma. At the triple rites he drank it as 'twas poured.‡
Maghaván[2] seized his shaft, the thunderbolt; he struck that first-born of the clouds.
When, Indra, thou hast slain the first-born of the clouds, then hast thou destroyed the deceptions of those deluders.
Then sun and sky and dawn producing, thenceforward found'st thou not a foe at all.
Indra struck the cloudier‡ cloud-god, maimed with his bolt with mighty blow.
As tree-trunks felled by the axe, Ahi lies stretched upon the earth.
Like a warrior, malignant, Vritra challenged the great hero, destroyer of many, slaughterer of his foes.
He has not escaped the contact of these slaughters. Indra's foe has crushed the river (banks).
Footless and handless, Indra he defied. He struck his thunder-dint upon his upper side.‡
As an eunuch desiring to be like a man, Vritra lay bereft of many limbs.
As from a river of broken banks, the waters, bringing joy to the heart, flow o'er him lying there.
At the feet of the waters which Vritra in his might imprisoned, lies Ahi stretched.
The mother of Vritra lay across her son's (body). Indra on her brought down his weapon.
The mother was above, the son below. Dánu lay as a cow with her calf.
O'er the nameless corpse of Vritra, cast in the midst of restless, never-ceasing waves,
The waters pass. The foe of Indra lay in lasting gloom.
The waters, the wives of the destroyer, had stood restrained, guarded by Ahi, like the cows by Panin.
Indra, having slain Vritra, has opened the cavern which confined them.
Like a horse's tail wast thou, Indra, with thy thunderbolt, when he alone, resplendent, struck at thee again.
Thou hast won the kine. Thou hast won, O hero, the Soma juice. Thou hast sent down the seven rivers to flow.
Not the lightning, not the thunder, not the rain which he poured, nor the thunderbolt, reached Indra,
When he and Vritra fought. Even in other (fights) was Maghaván victorious.

[1] The Hindu Vulcan. [2] Another name for Indra.
‡ These words are all of doubtful interpretation.

What slayer of Ahi didst thou look for, Indra, when fear entered thy heart, about to slay him,
And nine and ninety streams, like frighted hawk, thou fled'st across?
Indra, bearing the thunderbolt, (became) king of the moveable and immoveable, of tame and of horned beasts;
Thus he dwells the king of mortals. All those things he comprehends, as does the wheel its spokes.

We pass now to consider the most interesting portion of our subject, namely, what light is thrown on the history and early civilisation of the Hindus by the critical examination of these hymns. Now, in the first place, the more we read, the less respect we feel for these productions. Not only is the divine origin claimed for them by the Hindus at once refuted by the very ordinary character and the selfish creed which distinguishes them as peculiarly mortal, but they are not even all of them on sacred subjects. In one place we have an erotic dialogue of a loose description between a man and his wife; in another, an address to food, which was evidently the composition of some hungry or gluttonous head-man of a tribe. In another, a gambler complains of his ill-luck. In one the hawk, in another the sacrificial pole, in a third the Francoline partridge, in others even the mortar and pestle, and the wheel-barrow in which the victim is brought, are the subjects of laudation. Yet there is no room to suppose that these animals and objects were raised, by an Egyptian system of deification, to an idolatrous polytheism; everything in the Vedas militates against the idea of an infinite pantheon, such as that in which the Puránas revel; but rather we must take a more extended view of the case. We agree, then, with Roth in believing that the so-called Rishis—sages or seers to whom the hymns are attributed—were not men of a purely priestly character, but perhaps nothing more than chieftains, whose position, as the heads of their tribes, obliged them to call upon their gods and take the lead in all public sacrifice. Such a character we find in the celebrated Viswámitra; and the furious enmity breathed in some of these hymns is little consistent with that humanity which shrinks from the destruction even of a fly, by which Brahmans are distinguished in later works. Some indeed, and a large proportion, of these songs were evidently recited at the sacrifice which preceded a battle, and have no higher object than to elicit victory from a god who could give it. But, at the same time, we cannot deny that there were not only priests, but priestly tribes and families, in the Vedic age; and to the ascendancy of these tribes over the others we must look for the origin of Brahmanism. The Brahmans of Benares, and elsewhere, still claim descent from some of the Rishis, to whom the composition of these hymns, or rather their delivery from Brahma, is ascribed;

and, if we can believe the Aitireya Bráhmana, a purely Vedic work, the families of these Rishis were early distinguished by white robes and peculiar arrangement of the hair. Thus the Vásishthas wore a single lock on the right side of the head, the Atreyas three curls, the Angirasas five, while the family of Bhrigu[1] were clean shorn. It is true that every man was his own priest in his own house, and that the common kitchen fire was worshipped as a form of Agni (ignis), who is often unwinchingly praised for his utility in the culinary department. But we also find continual assemblies of priests, in large numbers, to perform sacrifices for monarchs and chieftains.

So then the hymns of the Vedas, far from being mines of theology and philosophy, are very simple effusions of a simple people, sung either before battle, or at the public sacrifice, or on more ordinary occasions; composed by leading men in the tribe, whether of a priestly or secular character, and handed down from age to age till they acquired a sanctity which has since clung to them.

We have no space to dive into the vexed question of Hindu dates. No investigation is so unsatisfactory. We shall, therefore, content ourselves with stating, that it is now received by several good scholars that the Vedic hymns were composed mostly about fifteen centuries before Christ, but not committed to writing, and therefore not collected, until the eighth century B.C. The geography of these hymns confirms in a striking manner the theory, long held by the best Sanskrit scholars, that the Aryan or original Hindu race migrated from Central Asia about seventeen centuries before Christ, entered India by the north-west, dwelt during the earliest Vedic period in the Panjab, and migrated, or rather fought their way, into Central India during the five centuries that succeeded. Long before the laws of Manu could have been codified, long before men could have been found to advocate the life-hating asceticism of Patanjali, or approve the half-atheistic theories of Kapila, the Aryan emigrants must have been settled along the Ganges, and been utterly changed from their Vedic ancestors. We have here indeed a free people, with little traces of caste, if indeed any of the apparent traces can be relied on. They were indeed divided into the five natural classes, just as they are in Homer; but, so far from being coerced by any rules of *varna*, we find a great saint, Vámadeva, dining off nothing less polluted than the entrails of a dog; we find the meat of horses, and even cows, devoured after the sacrifice; we find the family chaplain driving his master's chariot in the most servile manner, as in the legend of King Tryaruna, while

[1] Suidas and Hesychius tell us that the Thracians attributed their laws to Briges, as derived from the god Men. This is evidently Bhrigu and Manu.

sovereigns take the duties of priests on their own shoulders. Not once are the Shúdras mentioned; the Vaisyas never, as a caste. The term Kshatriya is once mentioned to designate the dependent of a Rájá; and though the name of Brahman occurs often enough, we can only understand it in its broadest sense.

Again, that the Panjab was the locality of the Vedic Aryans, we learn from the frequent mention of the Sursooty, and others of its rivers; and that they had not long been settled there, we gather from a certain connection between their worship and that of the people they had just severed from. Herodotus tells us (I. 216) that the Massagetæ sacrificed a horse to the sun, and (IV. 61) that the Scythians did the same, *with other animals.* The same custom was observed by the Persians;

> "Placat equo Persis radiis Hyperiona cinctum,
> Ne detur celeri victima tarda Deo."

The Massagetæ occupied precisely that position to which the legends of Mount Meru and its rivers, among which Jaxartes and Oxus may be clearly traced, point as the cradle of the Aryan race; and the early mention of the Sacæ (Sakás) and Bactrians (Yavanás) as the principal foreign nations, confirms the supposition that the Aryan race travelled southward from the highlands of Central Asia before entering the Panjab. Now there are two hymns in the first Ashtaka which describe minutely the sacrifice of the horse, the Ashwamedha, which those will remember who have read the "Curse of Kehama;" and the simplicity of this sacrifice, in which a single horse was preceded by a single black-necked goat of various colours, distinguishes it strikingly from the sumptuous Ashwamedha of later days, in which 349 animals were bound to 21 posts, and from the obscenity attending this sacrifice as described in the Rámáyana. But the great reverence even then attached to this offering, the distinction it gave to the worship of the sun, which had already given place to that of Agni among the Aryans, connects them very forcibly with the nomadic and semi-barbarous races from which they had separated. We may notice by the way, that in one of these hymns occurs perhaps the only indication of a future life, or at least of transmigration, contained in the Vedas:—"Verily, at this moment thou dost not die, nor art thou harmed, for thou goest by auspicious paths to the gods," is addressed to the victim.

But it must not be supposed that the Aryans of the Vedic period were barbarians, or even nomads. We have mention in their hymns of cities, of commerce, merchants and sailors, of weapons of wood and iron, of chariots, of heralds, travellers, and inns for their accommodation, and even of the vices of a primitive civilisation, such as dice-playing, prostitution, debts, and

debtors. The position of woman was also that of a freer and better age. There is great reason to believe that monogamy was universal, although polygamy was probably admissible; for though the hymn in which Dîrghatamas is said to have married the ten daughters of King Swánaya, may well belong to a somewhat later age, we have, in the one translated above, mention of the waters as wives of Vritra. We find, however, that women at that period appeared in public, rode in chariots, though apparently ill at ease in them, as they are described as swaying to and fro as bushes in the wind, took part in sacrifices, and even inherited a share of the paternal wealth. In short, the Aryans of this period describe themselves much in the same colours as another branch of the same stock was painted by Tacitus in the Germania.

Whatever be the date of the first collection of the hymns of the Vedas, it is not disputed that their composition precedes that of any other literary work in the world, with the exception of the Pentateuch. It is therefore a matter of no slight interest, to inquire what ideas they present with reference to religion. Now, those who look to all ancient records to confirm the narrative of our own Scriptures, will be here disappointed. We have not only very few remains of primeval legends, but we have even few indications of any original worship of a Supreme Being.

The religion of the Vedas is essentially a *natural* religion, and that of the most selfish, worldly, and material description. The objects of worship were wealth, safety, victory, and food.

"I invoke you both, Indra and Varuna, for manifold opulence; make us victorious over our enemies," is the common strain of their prayers. "Indra is a giver among the givers of thousands," is at once their common praise and common hint. Coming, as the Aryans doubtless did, from a cold mountain plateau, where, to believe Herodotus, wood was so scarce as to oblige the Scythians to burn the bones of the animals they wished to roast, it is no wonder that Agni, the fire, both domestic and aerial, should have been worshipped as the preparer of food and the mystic messenger between heaven and earth.

It has been attempted—but we, for our part, think without success—to draw a pure Vedic philosophy from the hymns before us. With the exception of one Súkta (A. 2, V. 14, S. 8), which is supposed by Sáyana to contain the doctrines of the Vedánta, but which, from its unusual length, and the fact that it is found again entire in the Atharva, may be supposed to belong to a later date than the rest of the Rich, these hymns seldom go farther in mysticism than to confound the deities and their attributes with those of the natural phenomena connected with them. It is true that Yáska not only affirms that all Devas

(spirits) are comprehended in one Mahán atmá, or universal soul, and that there are only three actual gods in the Veda—Agni, Indra, and Súrya. But we have sought in vain for any links between these which would constitute them a trinity, like the Trimúrti of Brahmá, Vishnu, and Siva, of later ages. Agni has, it is true, somewhat the character of a superior god, somewhat the universality of that Brahmá who afterwards took his place. But this is only what we might expect from the deification of so universal and latent an element as fire. Súrya (the sun), again, became Vishnu; but then Vishnu was from all times one of the adityas or manifestations of the sun. In the 3d and 4th Ashtakas, however, we begin to find indications of an identification of all minor Devas with one or other of the three principal gods.

The lower Devas are not deities, but only attendant spirits. They are thirty-three in number; the Maruts[1] or winds being the chief of them, and most often addressed, because they collected the clouds, which again bring rain, and indirectly food. The demigods are very few: Manu has been identified with Noah; and the two Aswins, physicians of the gods, born of the Ocean, young, handsome, and valorous, and of a serio-comic character, seem to correspond to the Dioscuri, Castor and Pollux. The only prominent female divinity is Ilá or Idá, the daughter of Manu, between whom and Cybele,

Alma parens Idæa deûm, cui Dindyma cordi,

we may fancy we see some slight connection. But we find no traces of a larger pantheon. Agni and Indra, with the same attributes and similar praises in each successive hymn, almost monopolise the earlier Ashtakas; and we seek in vain for a correspondent to Mars, Hercules, Venus, or even Neptune and Pluto. Katyáyana, Krishna, Lakshmí, and the rest, are developments of a later age; and a difficulty thus meets us in the question, at what age did the Pelasgic branch of the Indo-European stock separate from the Aryans, since the later mythology of the latter corresponds so nicely with the Greek pantheon; and yet in the Vedic period we find none of these deities? Only among the Celts do we discover a close analogy to the religion of the Vedas (or, perhaps, to a yet earlier creed in which sun-worship was pre-eminent), and an incipient hierarchical government. Yet philology and history both teach us that the Celts entered Europe long before the Pelasgians and Germans. Must we then suppose that the Pelasgians, the Germans, and the Sclaves, who have all brought with their language so much of the my-

[1] Pardon an etymology here. Rudra is sometimes described as the chief of the winds, collecting the clouds as a shepherd's dog does the sheep, and attending on his master Indra. As lord of the winds, he is *Maruchchhura*. Is there not a resemblance between his name and offices and those of *Mercurius*?

thology of India, separated from the parent stock *after* the Vedic period? Are we not rather driven to believe that the Vedas do not represent the religion of the whole Arya race that immigrated into India; but that, side by side with the tribes who sang the Vedic hymns, came others, bringing each their own gods, who were afterwards associated into the common Hindu pantheon? If this be so, the value of the Vedas as an authority for Brahmanism is yet more narrowed; but this, and many another interesting question which affects the history of a great branch of the human race, can only be solved by a far deeper study of Sanskrit literature than the editions and translations as yet existing permit us to pursue.

When we have stated that each of the Vedas has now received attention from Indianists in India, Germany, England, and France; that Stevenson translated the Sáma in 1841, Benfey more satisfactorily in 1848; that Roth and Whitney edited the Atharva in 1855; that of the Yajush, Weber gave us the text of the white recension in 1852, and Dr Röer that of the black in 1856–57, and that this last gentleman has edited and translated for us some of the most valuable of the Upa-Vedic Upanishads, we may pass to review the other grades of Sanskrit literature. The body of Vedic literature is immense, and its existence can only be accounted for by supposing that at an early period, long before the Vedic language became unintelligible, but not until the Aryas had quitted their north-western settlements and were safely lodged near the Ganges and Jumna, schools were collected round the most worthy of the descendants of the Vedic Rishis and families of bards, for the purpose of hearing the sacred hymns taught and explained. Among the first results of these were doubtless the Bráhmanas, which are considered as belonging to the Vedas, and in which moral precepts, religious instructions, and information on theology are conveyed. Very little is known of these works, which are less interesting than the Sanhitás, as being of later date; and no one has yet undertaken their publication. They are said to recognise the institution of caste, and Wilson supposes them to belong to the eighth century B.C.

But the real business of the schools was transacted by means of Sútras, or short mnemonic sentences. Those which have been retained treat chiefly of Vedic grammar and prosody; and some of the earliest literary productions in India were those which in other countries are generally the latest, works upon grammar. These were doubtless compiled by disciples in the school in which their original utterer taught; so that, as a general rule, the age of the grammarian, when ascertained, is no criterion of that of his work. The most celebrated of these grammarians is Pánini, who is also the earliest whose Sútras have come down to

us, though he himself tells us of many who preceded him. He is said to have belonged to the third century B.C.

From teaching the language of the Vedas, it is only natural that learned Brahmans should have gone off at an early period to their theology, and thence to speculation. The next branch of literature was therefore philosophy. The earliest philosophers —Kapila, who taught that all things proceeded from an invisible, eternal plastic principle; Gautama, who arranged a system of logic; and Patanjali, who originated that strange unnatural fashion—for we can scarce give it another name—by which the most rigid asceticism was raised into the highest religious duty—taught in Sútras, or mere mnemonics. The Hindus have classified six Darsanas—schools of philosophy—including among them the Mimánsá of Jaimini, which is little more than a Vedical essay. The three we have mentioned are undoubtedly the oldest; but the Brahmasútras, the chief authority of the Pantheistic Vedánta school, though much later than the rest, are still mnemonics, as also the Vaiseshika or atomic school of Kanáda. The Bhagavad-Gítá alone, the most intelligible and most interesting of all, is written in splendid metre, and belongs to a far later and more literary age.

The date of these schools depends on that of Buddha, who may have lived in 544 B.C., according to the Hindus, or in 350 B.C., according to German critics.

The law-book of Manu undoubtedly preceded, or was at least cotemporary with Buddhism. It could not have followed it at any great distance of time; and had it been composed when the new religion was warring with the old, it would of necessity have devoted much space to its condemnation. The few passages supposed to allude to Buddhists are very obscure, and might well have been written at a period when the new creed was struggling into popularity and despised by the orthodox. But Manu is also posterior to Kapila; for his philosophy (this Hindu lawgiver is philosopher too) is that of the Sánkhya to a certain extent. The date, then, that Wilson gives for this work—viz., the sixth century B.C.—is probably the right one. The name of Manu is of course merely appended to the book, after the usual custom of Sanskrit writings, by way of compliment. The Hindus themselves do not pretend that he wrote the work in question, but a far larger and more ancient one, from which this is an abbreviation.

The law-book of Manu opens with an account of the creation, and goes through the category of every difficulty that a man, a state, or a community can possibly be found in. It embraces, in fact, the whole duty of man and of men—religious, political, social, domestic, and private; the duties of monarchs are laid

down with as little ceremony as those of the veriest Pánchála; and from beginning to end we see the spirit of a powerful hierarchy, arranging and directing everything with vast ability, but intolerable arrogance. The laws of Manu are almost impossible, so systematic, so unflinchingly punctual must be the life regulated after their ordinances. A man's existence is divided into four parts, beginning from the day of his conception within the womb, and closing with the funeral pyre; and during that period not an action is permitted, to guide which a law has not been laid down. His very teeth must be brushed with a wood suitable to his caste; his most intimate conjugal connections are open to censure; his most innocent diversions limited to certain minutes and seconds, to go beyond which is to risk a continued and painful metempsychosis. The morality of these laws is of the least exalted description. No allowance is made, no encouragement given to genial and natural affection. The wife must be sought according to rule, her sole purpose being the procreation of male children. The old parent, at the time when his grandsons nestle round his knees, must leave the cheery fireside, and, with an abnegation scarcely human, seek solitude and even danger in the jungle, that he may prepare for a future life. The son must honour his parent; but even the offerings which he is to pay daily to his manes, are to be done with the selfish object of obtaining a like service from his own children when he is himself in another world. Yet so great is the faith in metempsychosis, so great the dread of returning to earth in a lower form, so hopeless, so resigned the state of the Hindu mind, that these laws still hold their place in India, still determine the limits and the rules of caste.

Thanks to the translations of Houghton and Loiseleur Deslongchamps, this law-book has been well known in Europe for the last thirty years. Some thirty-six authorities on points of civil and criminal law are still in use in India, and that of Manu, though always regarded as the highest, is rarely brought forward, as being scarcely fitted for the present age. Indeed, the laws of Manu take often even a milder view of the stern necessities of life than the Hindus now hold; and, if they alone were followed, no widow need ever have sacrificed herself beside her husband's corpse, no young mother given her child to the waves. There is no injunction in Manu for such practices.

The chief authority, however, on as much of the native law as is still used, is the Mitákshara of Vijnáneswara-Bhatta, who flourished in the tenth century of our era. It is a commentary on the law-book of Yájnavalkya, which again is an abbreviation of Manu, composed in the fourth or fifth century, and more suited to modern requirements than the older work. The

Mitákshara is still the chief authority in all parts of India on civil contracts and the law of inheritance, and a good edition and translation are much to be desired. The little work of Stenzler (Berlin, 1849) contains a clear edition of the text, and faithful translation, of Yájnavalkya's couplets; but the Mitákshara is, of course, the important part, and this we have still to look for, as the treatises of Colebrooke are now by no means easy to obtain.

The great Epopœia followed the laws of Manu at no wide distance. It is doubtful whether either of them was composed as a whole, and the Mahábhárata was undoubtedly a compilation of popular lays on national events. The main story in each belongs to a post-Vedic, or rather Upa-Vedic age, when the Aryans had pressed far into the Peninsula. That of the Mahábhárata describes the internecine war of two closely allied tribes, the Kurus and Pándavas, for the supremacy of the Holy Land of the Doab, with Hastinápura, the modern Delhi, as its capital. The story of the Rámáyana has some resemblance to that of the Iliad. Sítá, the beautiful wife of the hero Ráma, is carried off by the giant Rávana—a very different character to the Phrygian herdsman—to the island of Lanká or Ceylon, whither Ráma follows him, and, after a variety of adventures, recovers his spouse. The reef across the Straits of Manaar is still called Ram's Bridge, and the legend asserts that he threw the rocks which compose it into the sea one after another. The bare story of each epic is probably historical.

If we pass over a few minor works of little interest, we come at once to the classical age of Sanskrit literature, ranging from the reign of the munificent patron of art and letters, Vikramaditya the Great, in 56 B.C., to the tenth century of our era. Hitherto we have had nothing but compilations, we have now compositions. Hitherto the dates given by the natives for their great works have been perfectly unreliable. We have from this time certain fixed eras from which it is easy to calculate the age of a work, although it is not until after the tenth century that MSS. begin to bear dates.

All the most readable of the Hindu effusions—the drama, the lyric, the sentimental and philosophical Kávyas, as Nalas and the Bhagavad-Gítá, the romantic histories and historical romances, the fables, Hitopadesa, Vetálapanchavinsati, and so forth, and most of the works on science—belong to these ten centuries. We have space only to notice the drama.

Though there can be little doubt of the spontaneous origin of the Hindu drama—and it can be traced, like that of Greece, to religious festivals—it presents, perhaps, the least Oriental aspect of all Sanskrit literature. It has none of that didactic stiffness with which Brahmans, never forgetting the sterner duties of life,

encumbered their lightest effusions; even the erotic lays of Bhartrihari being accompanied, like the nettle by the dock, by an array of melancholy proverbs. The drama was, in fact, like the game of Chaturanga, composed solely for the amusement of kings and their courts; and if we can trust the imaginative historian of the Bhoja-Prabandha, its authors, although of Brahman caste, were far from leading strict or even decent lives.

There were as many classes of theatrical representation as our own stage, from Covent Garden to Westminster Bridge, can display—martial pieces, short comic dialogues, farces, operas, and talking ballets; but among none of these do we find a single tragedy, and the nerves of the luxurious monarchs for whom they were composed would probably have been shaken beyond endurance by the ὀτοτοτοτότοτοι of an Attic chorus, or the general slaughter that winds up Hamlet.

A drama without a theatre, represented in the music hall attached to a palace, with a highly sophisticated audience and no "gods," with no machinery, no scenery beyond a curtain at the back of the stage, and another at right angles to it, if required; a drama written for the occasion only, and never acted again, must have required great excellence of diction to make it successful; and the long poetical descriptions of Kálidása have led to the supposition that these plays were written for reading rather than representation. Such, however, was not the case, as the MSS. which have come down to us contain full directions of the minutest description for stage entries and gesticulation, of which, in the absence of fitting properties, a great amount was required.

The chief orientalisms about the drama are the benediction with which it opened, the description of the piece, its author, and so forth, which followed this, and the unrestrained introduction of gods, angels, and spirits. In all other respects, as far as its form was concerned, a Hindu play resembled the comedies of Plautus and Terence. There was the same division into acts and scenes, the same absence of a chorus; and, strangely enough, the same unvarying *conviva*, the butt, fool, and confidant of the piece, always hungry, and ever ready, for a dinner in prospect, to do the hero's dirty work, and help him out of his scrapes. In Kálidása's plays the Vidúshaka, as he is called, has a great deal of fun about him, rarely, however, amounting to wit; but in the less lively productions of Bhavabhúti he is more useful and less amusing. Indeed, wit was scarcely aimed at by these authors; it is hardly cared for by the serious and sentimental Hindu; and to portray the delicate loves of innocent and bashful youth was his dearest art. In this none has excelled so eminently as Kálidása, who is said—and there is no good reason for doubting the fact—to have lived in the time of Vikrama the Great, B.C. 56.

No poet is so celebrated and highly esteemed in India, to none have so many poems, epic, lyric, dramatic, been ascribed; and certainly, if he is not entitled to a comparison with Shakespeare, it is not a little to his honour that his play of Sakuntalá should be considered the gem of Oriental literature, should have received the rapturous applause of the author of Faust, and should now, under the able management of Mr Monier Williams,[1] have attained a just popularity among those who are capable of appreciating the beauties of other climates. The Hindu theatre is not large. Wilson's list, which is probably complete, contains the names of only sixty pieces, and of these not more than six belong to the classical age, of which two are the works of the famous Kálidása. A third is attributed to him, the Málaviká and Agnimitra; and Weber, in his translation of this play, is anxious to establish the authenticity of this attribution. But, in spite of a certain resemblance in the plot, we are compelled to agree with Wilson in the opinion, that there is sufficient in the details of the piece to fix a later date for its composition.

Of the four other classical plays, three are those of Bhavabhúti, who lived in the eighth century; and the last is that wonderful production—to our mind the most interesting (though it has not the beauties of the Sakuntalá) of all—the Mrichchhakati or Toy-cart. This is the only play from any part of Asia which has been acted on a European stage. In 1850, Messieurs Méry and Gerard de Nerval courageously adapted it to that of the Odéon, where it had a very successful "run."

We must leave the Sakuntalá to tell its own story, convinced that those who take up Mr Williams' translation will not hastily lay it down, and content ourselves with a few extracts from among its many beauties.

When the hero first meets Sakuntalá she is tending the trees of her father's hermitage, when a wicked bee attacks her, and a pretty warfare commences, which the king watches enrapt.

> "Where'er the bee his eager onset plies,
> Now here, now there, she darts her kindling eyes.
> What love hath yet to teach, fear teaches now,
> The furtive glances and the frowning brow.
> Ah! happy bee, how fondly dost thou try,
> To steal the lustre from her sparkling eye;
> And in thy circling movements hover near
> To murmur tender secrets in her ear;

[1] And we must add, of its publisher, Mr Stephen Austin, who, with an almost lavish liberality, has done every thing to make the vehicle worthy of the contents that can be done by chromatic borders, head and tail-pieces from MSS. in the British Museum, excellent engravings, the choicest paper, and printing which obtained the medal of the Paris Exhibition, and has gained this book a place among the typographical specimens in the Museum.

Or as she coyly waves her hand, to sip
Voluptuous nectar from her lower lip!
While rising doubts my heart's high hopes destroy
Thou dost the fulness of her charms enjoy."—*Sac.* p. 19.

Kálidása delights in nothing more than in descriptions of nature of which he was a careful observer. He has more than one picture of those oppressive Eastern noons when the stillness is more profound than at midnight, and "you almost hear the great heat-drops from nature's forehead fall," when, as he says—

"The drowsy bee
Sleeps in the hollow chamber of the lotus
Darkened by closing petals."

In the following he gives us a sketch of the quiet jungle:—

"All undisturbed the buffaloes shall sport
In yonder pool, and with their ponderous horns
Scatter its tranquil waters; while the deer,
Couched here and there in groups beneath the shade
Of spreading branches, ruminate in peace;
And all securely shall the herd of boars
Feed on the marshy sedge."—*Sac.* p. 42.

Still more Indian is the description of the stout hunting monarch wasted by his passion:—

"As night by night in anxious thought I raise
This wasted arm to rest my sleepless head,
My jewelled bracelet, sullied by the tears
That trickle from my eyes in scalding streams,
Slips towards my elbow from my shrivelled wrist,
Oft I replace the bauble, but in vain;
So easily it spans the fleshless limb
That e'en the rough and corrugated skin,
Scarred by the bow-string, will not check its fall."—*Sac.* p. 71.

The departure of the maiden from the quiet hermitage where she had lived so long is painted with much tender beauty:—

"In sorrow for thy loss the herd of deer
Forget to browse; the peacock on the lawn
Ceases its dance;[1] the very trees around us
Shed their pale leaves, like tears, upon the ground."
"It is the little fawn, thy foster child,
Poor helpless orphan! It remembers well
How with a mother's tenderness and love
Thou didst protect it, and with grains of rice
From thine own hand didst daily nourish it;
And ever and anon, when some sharp thorn

[1] Alluding to the restless circular movements of this bird at the approach of rain.

Had pierced its mouth, how gently thou didst tend
The bleeding wound, and pour in healing balm.
The grateful nursling clings to its protectress,
Mutely imploring leave to follow her."—*Sac.* p. 108.

The genius of our poet is not all of this placid and gentle nature, and at times he can burst forth in vehement passion and impatient grandeur. The picture of his hero's madness in the Vikramorvasi is one that would do honour to the literature of any age and country.

We have done our best to set forward the advantages to be reaped from a study of Sanskrit; but though its devotees are increasing every year in number, it will be long before it takes the place to which it is entitled beside the study of European classics. In the meantime, those among us who have mastered it owe a duty to the rest, and we fervently trust that there will be many to follow the example of Mr M. Williams, and rob their profounder study of a few hours, from time to time, in order to give to European readers the beauties which they meet with in a form in which they can be generally appreciated.

ART. III.—1. *Lehrbuch d. Kirchengeschichte.* v. Dr J. C. L. GIESELER. Bonn: Marcus. 1842–1857.
2. *Handbuch d. Kirchengeschichte.* v. H. E. F. GUERICKE, Dr u. Prof. d. Theologie, Achte Auflage. Berlin: H. Schindler. 1855.
3. *Kirchengeschichte.* v. Dr KARL HASE, Sebente-Auflage. Leipzig: Breitkopf u. Härtel. 1854.
4. *Lehrbuch d. Kirchengeschichte f. Studirende.* v. Dr J. H. KURTZ, Dritte Ausgabe. Mitau: A. Neumann. 1857.
5. *Handbuch d. Kirchengeschichte.* v. Dr J. J. RITTER, Funfte Auflage. Bonn: Marcus. 1854.
6. *Die Grossen Kirchenversammlungen d.* 15*ten* u. 16*ten Jahrhunderts geschichtlich* u. *kritisch dargestellt.* v. J. H. v. WESSENBERG. Constanz. Glukhez.
7. *Die Kirchengeschichte in Biographien.* v. FRIEDRICH BÖHRINGER. Zurich: Meyer u. Zeller. 1842—1858.

A PROFESSOR of Theology at one of the English Universities was staying, in vacation time, with a clerical friend. Whether, like a Glasgow professor of the last century, he had taken Poole's "Synopsis" with him as light summer reading, we know not. At the request of his friend, he agreed to put a few questions in the Sunday school.—The first urchin that was called up had the astounding query put to him, Well, what can you tell me about the Monothelite controversy?" The perplexed lad was not more ignorant of the views of these old eastern heretics, than are most even of well-educated Englishmen of all special acquaintance with, or love for, the matters which Church History unfolds. In their minds this study is associated with all that is professionally dry and repulsive. Nor can we altogether wonder at this. We have in English no work on Ecclesiastical History to place on a level with the great works on Civil History, which the close of the last century and the present have produced. Church History has yet to find its Hallam; has still to wait for its Macaulay.

Two centuries nearly have elapsed since Thomas Fuller published his "Church History of Great Britain." Many corrections, owing to the publication of documents unknown to that witty author, might now be made in his work, but in readableness he has not been equalled by any subsequent writer, either on a wider or a narrower part of the Church History field. It is exaggerated censure on the part of Hase to say of Milner, that "his book is merely popular Methodism without recourse to

the original sources." The master of the Hull Grammar School was a thorough scholar, and too conscientious to avail himself only of secondhand materials. But his view was too narrow to admit of his doing justice to the noble field that lay before him; and though he felt as a saint, he wrote as a sloven. On highly cultivated minds his book could make little impression. Dr Newman, in his bitter hatred to the Church which he abandoned, has told us that Gibbon is the source whence most Englishmen derive what knowledge of Church History they possess. The sneer may have some truth in it; but where have been the contributions in the English language to Church History from the Church to which Dr Newman has joined himself?

Some meritorious compends of Ecclesiastical History for professional use have, of late, issued from the English press, among which that of Hardwick, though not unfrequently sacrificing both vigour and accuracy to the affectation of point, is decidedly the best. But for the unprofessional reader, desirous either from devout interest in the past fortunes of Christ's Body, or from general views of intellectual improvement, to make himself acquainted with the bygone eras of Church History, there is, as yet, no work of native growth to supersede Milner. Hopes were once entertained that Scotland would furnish a history thoroughly adequate to the wishes of cultivated and serious minds. One whose name must ever be dear to the numerous students whom he trained for professional work—whose name must ever be venerable to the readers of this Review, which he first edited, Dr Welsh—gave to the world the first volume of a History of the Church, based upon his lectures. All who profited by his, alas! too brief professorial career, would agree in ascribing to him a great benefit, alike in the amount of information communicated, and in the direction given to their future studies. Dr Welsh was most thoroughly conscientious in his academical labours. There never lived a professor, in whose case there were less need of a vague unreasoning trust on the part of his students. Whatever he stated might be implicitly depended on, not, indeed, as absolutely accurate (of whom, in so wide a field, could that be said?), but as the result of careful, judicial, unimpassioned research and consideration. As years rolled by, and their own independent studies reached greater development, some might indeed have wished that, while under his tuition, more space had been afforded to such subjects as the history of Christian philosophy, or of preaching, or of sacred poetry, or of ecclesiastical art. But a little further consideration would probably lead them to the belief, that if their revered instructor did not do all upon these subjects in his lectures that might have by some been wished, it was because the space at his command, in a three years' course,

was limited, and because he knew that those who felt a longing to prosecute such subjects, would afterwards be fully able to gratify their desires. Dr Welsh was cut off in the prime of life, before he could fully mould a generation of students by his philosophic habits, his practice of accurate research, and his deep love for his subject. Scotland never before possessed so thoroughly qualified a professor, and, without unwisely seeking to compare men so radically different, it may be as easy to find a second Chalmers, as to meet with another Welsh. Had he lived to complete the History, of which only one volume was given to the public, Scotland would have had one man, of whom, without exaggeration, it might have been said that he had done what in him lay to make his native country what France in the seventeenth century was, and what, after Fleury's time, Germany has become in the Church History field.

While, from one cause or another, our country remains thus inferior, and even the great endowments of the English Universities are found unavailing to produce a class of men, who may compete with their Teutonic contemporaries, it is pleasing to contemplate the variety and the value of the contributions to the subject before us, which, especially since Mosheim's time, Germany has afforded.

A History of the Church, from the beginning to the present time, on a large scale, may be safely pronounced one of those gigantic undertakings, which no man can reasonably expect to live to accomplish. Baronius, Natalis Alexander, Fleury, Schrökh, Neander, Welsh, all quitted the scene ere their self-imposed task was finished. The original investigation of the thousand points which occur; the accurate proportionment of these, according to their intrinsic value; the casting these into a full, thorough, well-developed, picturesquely-narrated story—are beyond the compass of threescore years and ten. He who would, in any true sense of the term, be an exhaustive Church historian, must take a special country, or a particular age. Either may amply satisfy a reasonable ambition and a probable hope.

The Church historian, to come up to a reasonable anticipation of his qualifications, should be one fully able to seize and to present the salient points in the aspect of the past. Whatever was most characteristic of the age; whatever moved the minds of the thinking few; whatever stirred the feelings of the unreasoning many—he must know and show. Here it may be the German discourses of a Tauler, there the Latin sequences of a Jacopone; at one time the recasting in a new form of Church music, at another era, the advance or the decline of some form of ecclesiastic art. A due proportion, indeed, must be observed; the deeper must not be thrown into a corner by the superficial; the

permanent must not be cast into the shade by the transitory. If the historian's attention be drawn to Canterbury, it must be less by the noble minster which Lanfranc founded, and where the Black Prince found a tomb, than by the leadership of Christian speculation, which marked Anselm as the greatest of our mediæval prelates, and the profoundest thinker (with, perhaps, Butler's exception) that ever wore an English mitre.

The Church historian must, on a large scale, exhibit the same qualities of mind which characterise the unpartisan and non-sectarian ecclesiastical student. His professional library is the most true to its purpose, the ripening of the Christian scholar, which, on its impartial shelves, presents for view to friends, for use to the owner, the best productions of religious thought, from the first age till the present. The Greek and the Latin Fathers; the great mediæval writers of the Western Church; the illustrious men who in France fought the contest of the seventeenth century from a Protestant or a Gallican stand-point; the writers of modern Germany, of different schools, must find their place there, with the authorship of our several British sections of the Universal Church. No paltry or timid limitedness marks the library of the real scholar. What he is for personal advantage, the Church historian must be for the public good. He must have no narrow preferences to mar the impartiality, which is the first duty of a historian. Yet he must not be an Indifferentist. The supernatural origin of Christianity, and its Divine superintendence from era to era; its immeasurable superiority to every competing system, and its destined triumph over them all,—must be firm articles of faith in the historian's mind. With every variety of intellectual product that has honestly sought, within a narrow circle or on a larger platform, to extend Christianity where it was not known, to make Christianity real where it was only nominal, to make Christianity profound where it was only shallow, he must be ready, heart and soul, to sympathise.

The Church historian who would fully accomplish his work, must have in him a proportion of the systematic theologian and of the popular preacher; he must, if not himself a writer of sacred poetry, be one who can fully sympathise with a Gerhardt or a Tersteegen, a Charles Wesley and a James Montgomery;[1]

[1] A proof of the unpopularness of Church History among us is presented by the very scanty use which our British poets have made of it. Wordsworth's Ecclesiastical Sketches are, as a whole, too stiff, and too much, as it were, written to order, to fill up the gap, and do not extend beyond Britain. It were a noble and a worthy effort, were each country to do in the person of some gifted son or daughter, what, on a small scale, and with varied success, has been achieved for a century of Scottish History by the authoress of the "Lays of the Kirk and Covenant." Will Mrs Browning not add another to her claims on her contemporaries, and, we hope, on posterity, by giving us some pieces inspired by the sacred Past?

if not a profound critic of Church art, he must be one who can enter into the spirit with which a William of Wykeham or an Erwin von Steinbach wrought. To him, however decidedly Protestant, Monachism must not present an unrelieved mass of blackness; the Benedictines of St Maur, in their unique and unrivalled contributions to ecclesiastical lore, will afford a proof that, in certain circumstances, the cloister is a partial good. In a word, the Church historian will be one ever on his guard against having pet churches, pet eras, or pet men. Large-hearted without laxity, catholic without indifferentism, such is the man who may, with a due regard to the time to be spent, and a due respect to the pains to be taken, sit down to the composition of that saddest, yet noblest of stories, that stretches between the Ascension and To-day!

We cannot say that the ideal which we have endeavoured to trace of a Church historian is fully, or nearly fully, come up to by any of those recent German writers, whose works are now under review. But all of them afford valuable contributions towards paving the way for the future realising of that ideal.

As one era in the treatment of ecclesiastical history was marked by Mosheim, the first German writer who succeeded in reaching a more than German reputation, so another period is traced by Neander. We do not purpose here to enter into the character of that great writer, further than to remark that his chief work is marred by a total want of proportion. He was carried away by the habit of monography (acquired in his previous historical works), where it was only mischievous. The fault did not mend as he went on; witness the undue length with which, in his last volume, he portrayed Matthias of Janow. What was favourite with Neander was elaborated; what was not favourite was, if not neglected, at least comparatively cast into the shade.

Two greater contrasts than Neander and Gieseler could scarcely be conceived. The former, a hermit-like recluse, nothing beyond his study and his chair; the latter, an active, sensible, wide-awake man of the world. They both reached the same age, dying when little more than sixty. Nearly contemporaries, they in youth saw Rationalism in its vigour, and in middle life beheld the tide effectually turned in favour of a better system. Both have stamped their impress widely on their own land. Each has won for himself a large measure of appreciation in Britain and the United States.

Gieseler has not attracted much attention by any other publication than his great work on Church History. In this he presents a striking contrast to Neander, whose works on Bernard,

Tertullian, and Chrysostom, would of themselves have built up a substantial reputation. The three concluding volumes of Gieseler's work have the disadvantage of being posthumous. The General History, from the Peace of Westphalia to the present time, and the History of Doctrine to the Reformation, have been edited from his manuscript by his friend, Dr Redepenning, well known as the editor of Origen "de Principiis."

Of Gieseler's work, as well as of German Church historians generally, the remark is true, that Germany is elaborated on a scale disproportioned to its true value. The land of John Tauler and Martin Luther played an important part in the middle ages, and in Reformation times; the country of Neander and Schleiermacher, has, within the last sixty years, exercised a wide influence on religious thought in English-speaking countries, and though less so, on at least Protestant France. But German writers seem to forget that, for two centuries, between Luther and Schleiermacher, the influence of Germany beyond the Rhine was almost null. Gieseler, as a Church historian, is free from Neander's fault of unduly dwelling on favourite individuals. Where he has thoroughly gone into his subject, as in the mediæval portion of his book, which we consider the best of it, he has, in the main, well proportioned its different parts. Even here, however, there are deficiencies. Thus, he never mentions (nor does any of the other writers on our table), the very remarkable case of Patrick Graham, the first Archbishop of St Andrews, whose reforming zeal brought on him the accusation of heresy, and led to his deposition and imprisonment until his death in 1478. A case as memorable as either that of Savonarola or Carranza should not have been passed over.[1]

When we come down to the Reformation, we find that, while the German part of the history is fully elaborated, both in the Lutheran and Calvinist portion, to the British part justice is by no means done. The causes which, in Scotland, paved the way for the change, such as the gross profligacy and enormous wealth of the clergy, are not brought before the reader's attention. The various writings of the Reformers and their opponents are not noticed; and the merely political aspect of the work is unduly dwelt upon. With the works of the great men of the second Reformation, Gieseler appears to have been utterly unacquainted. Even the names of Rutherford, Dickson, and Henderson are ignored. The persecutions in Charles the Second's time are left out of view; the distinctive differences of the north and the south of the Tweed at that period are lost sight of. It would appear that the "dark and mistrustful Presbyterians," as

[1] Hardwick is very deficient in his account of Scottish matters; thus he seems quite unaware that Lollardism ever crossed the Tweed.

he terms them, with especial reference to the time of James the Sixth, were so little to his taste, that he would not bestow the requisite pains to elaborate their story.

Passing to England, we find that Gieseler confounds the Patristic Arminianisn of Laud and his school with the Remonstrant Arminianism of Hales and others. He appears to suppose that the statesman and the philosopher, Lord Shaftesbury, were the same person. Not acquainted with such works as Pearson on the "Creed," he speaks of England during the era of his fourth volume (1648–1814), as having produced no work of systematic theology. While the worthless name of Sterne has prominence given to it, as remarkable for pulpit eloquence (!) we have no mention of Barrow, Taylor, or South, among the Churchmen, or of Howe, Bates, and Doddridge, among the Nonconformists and Dissenters. Far inferior men among the apologetic writers of England are mentioned, but of Butler not a word. Indeed, from the silence observed upon him by others, both Romanist and Protestant, it would appear that the "Analogy" and the "Sermons" are quite unknown to our Teutonic friends.

In this part of his History also, Gieseler leaves out of view the missionary efforts both of Churchmen and of Dissenters, both in England and Scotland. In the subsequent volume (1814–1850), we have indeed mention of the London Missionary Society; but the Church, the Baptist, the Wesleyan, the Free Church Missions are utterly ignored, while nearly half a dozen pages are assigned to the as yet very unproductive "Bishopric of Jerusalem." Again, while some space is given to English Methodism, the almost national church of the Welsh Calvinistic Methodists is utterly left out of view.

Nor has Gieseler made up for his imperfectness in the treatmeant of English Church History by any better acquaintance with the annals of our brethren in the United States. He says of American Christianity in general (v. 372), "In business their dishonesty is so frequent as to be made the matter of universal reproach among other nations; the citizens of the north-east provinces, New York, Pennsylvania, who are most distinguished by an external piety, are also most notorious for their cheating propensities. Their religiousness shows itself in no way by benevolent actions; and, therefore, cannot be as hearty as it is loud in profession." These sentences are of themselves enough to show that Gieseler knew little about the Home and Foreign Missionary enterprises of our transatlantic brethren. What has been done by them in India, Burmah, the South Sea Islands, is never mentioned. In respect of theological instruction, he says (p. 376), "the measure given is very scanty." The names of Andover and

Princeton are of themselves sufficient to refute the statement. The *American Theological Reviews* also, had they been known to Gieseler, would have furnished indisputable proof of the inaccuracy of his assertion. He speaks of the Unitarians as the most numerous party among the cultivated classes, which is true only of Boston and its vicinity. Of Edwards, Dwight, Woods, as theologians; of Moses Stuart as an exegete; of Payson, Nettleton, and Spencer, as preachers and pastors; of the Abbotts and other popular religious authors, we have not a word.

On the other hand, the student, wishing to learn the history of the Romish, the Lutheran, or the Calvinistic Church on the Continent, will find Gieseler both an able and an accurate guide. It might indeed have been wished, that while he properly gives a detailed account of the efforts for reform in the Romish Church, made especially in Southern Germany by Sailer and others, he had adverted more to the theological and philosophical labours of members of that communion. The names of Mai, Passaglia, and Perrone in Italy; of Klee, Hefele, Denzinger, and Baader in Germany; of Guettée, Rohrbacher, and Pitra in France; and of Wiseman in England, were quite as worthy of mention as those of Döllinger, Bonald, and Lacordaire, which he has introduced.

The sixth volume of Gieseler comprises a History of Doctrine from the time of the Apostles to that of the Reformation. Here, in three periods, is traced carefully and distinctly the development of Christian doctrine on Apologetics, the Canon, the Trinity, the Person and Work of Christ, the Application of Redemption to Man, and other important theological questions. It is written from a thoroughly non-Calvinistic stand-point. Thus we read (p. 516) of "the inhuman sternness of Augustinianism." Ample and well-selected quotations are given from the theological writers of the different eras. The want of the author's revision is seen in a few instances, as in the stating the objections of Porphyry to Christianity, both under the first and the second periods. We extract the following sentences upon the use of the Scriptures in the ante-Nicene Church:—"Tertullian exhorts the heathen to read the Holy Scriptures themselves, with the remark, that, through various circumstances, these come into the hands of persons not belonging to the Christian community. Irenæus observes that the Christians could read the Bible at the dwellings of the presbyters, who took care of the Church copies; but that, among the people themselves, private copies were not awanting, is plain from Tertullian, who expressly states Bible-reading among the occupations of a Christian woman. Especially in the writings of Origen do we find abundant proof, that in this period the general use of the Bible was considered not only allowable, but

essential. . . . It is, however, another question, how far all laymen made, or could make, use of their right to read the Holy Scriptures. Books were of course very dear at a time when they were multiplied only by the pen; and hence few Christians could themselves possess a copy of the Word of God. This was the reason why Irenæus urges the people to make use of the Church copies. Besides, the ability to read was by no means a very ordinary accomplishment among the common people. Hence we may well believe that most would content themselves with hearing the Bible read and explained in the public meetings for worship."—(P. 105–7.)

The coldness of Gieseler is felt as a grievous disadvantage by the student. That reproach cannot be brought against the devout and earnest Guericke, who everywhere writes as one to whom religion is something far deeper than a mere mass of theological speculation. They who differ most from his high Lutheran stand-point, must yet admire and love the warm Christian sentiment which appears in every page. A pupil of Neander, Guericke is, however, totally different in the treatment of his subject. He has, as he states in his title-page, bestowed especial attention on the tracing of the doctrine, as well as on the recounting the story, of the Church. You see that you have to deal with a far more thoroughly theological mind than that of Neander—a mind possessing and cherishing a thoroughly definite creed on the whole compass of Christian doctrine. About Guericke's views there is no vagueness, no misty speculation. As Luther, Melancthon, Chemnitz, and the older Lutheran divines, have shaped their Church's views, so he holds. A work which has passed into an eighth edition, has proved itself suited to the views of a large proportion of the German students of the history of the Church.

We do not find in Guericke, nor in any other of the works before us, the scope and bearing of Jewish and Christian antiquity, in relation to Christianity, educed as they have been by Pressensé in his recent work, "Le Prémier Siècle." Nor do we find the relation of the Roman imperial power to the new faith brought out with the vividness and vigour of touch which De Broglie has displayed in his remarkable book, "L'Eglise et l'Empire Romaine." The Frenchman's power of depicting a period or a system seems awanting to the Teutonic mind, though Hase is undoubtedly an exception. But conscientious and many-sided research characterise this, the opening portion of Guericke's book, as well as the subsequent parts. He, as well as his rivals in the field, have studiously endeavoured to improve each successive edition, though the remark of Hase must still prove true: "He who writes a Monography, understands the

matter better than any other; he who undertakes a General History must learn from all, and may be corrected by all." (Preface to seventh edition of C. H.)

Guericke divides Church History into seven periods—the first extending to Constantine, A.D. 311; the second to Gregory the Great, 590; the third to the death of Charlemagne, 814; the fourth to Gregory VII., 1073; the fifth to Boniface VIII., 1294; the sixth to the Reformation, 1517; the last to the present time. To the end of each period is attached an Excursus on the History of Doctrine, full in the first and the last periods, more condensed in the intervening ones.

The style of Dr Guericke is a very faulty one. When compared with that of Kurtz, or Hase, or Ritter, it is vexing and wearisome to the reader. The form of thought is as little attended to by him as it was by Neander. There is an absence of French-like vividness or English masculine vigour. It is a half-pamphlet half-sermon style, in which amplification and popularising of the thought seem to be the chief things aimed at. When this is not the case, the fault is generally exchanged for an involution, copied from the worst specimens of his country's philosophists. We wish that he and others guilty of such offences against their readers' comfort, would take a lesson from the prose works of Goethe and Schiller! In such parts of his work as the Excursus above mentioned, where he is compelled to be brief and definite, these faults of style nearly disappear. Another most unartistic evil of Guericke's book is, the series of unmerciful notes with which his volumes—and, to the worst extent, his last—abound. In the plan of Gieseler, an extended annotation of extracts from authors was unavoidable; and, unsightly as it makes his pages, the student bears with it, as an essential part of the system on which the work is written. But Guericke has no such excuse; it is sheer blundering on his part. Nine-tenths of the notes might, by a better arrangement, have been incorporated with the text. A writer whose work has been so well received by the public, and who has so creditably in other ways sought to improve the successive editions, ought to take the not very great additional pains to promote the interest and the instruction of his readers in this matter also.

We cannot bring against Guericke the charge to which we have shown Gieseler liable, of superficialness in the treatment of British and American history. He has obviously taken a large amount of pains with both. The authors whom he has consulted upon Scottish Church History are more numerous than those Gieseler has availed himself of, though he has failed duly to consider the Episcopal literature. The minority here, as everywhere, ought to be fully heard. The names, though not the

chief works, of the great men of the Covenant period, are duly given. We see the partisan in the estimate of Knox, that "he wanted the apostolic moderation of Luther." If Luther had had in Saxony to contend with hostile and crafty princes, would he not have displayed the masculine energy of the Scottish Reformer, in making head against them? We find no mention made of the various sections into which the Scottish Church has been divided since the Revolution, until we come down to the Disruption of 1843, which receives due notice. With the Scottish popular theology of Boston and the Erskines, Guericke seems quite unacquainted.

In his history of English Church matters, several inaccuracies occur. Thus, Bishop Bull is classed with the latitudinarians. The Puritans are said to have refused subscription to the Articles, as if they partook the aversion of some of their professed representatives to human confessions of faith. Serious omissions also occur. Thus, the great Church and Puritan preachers of the seventeenth century are passed over. Bunyan receives a notice not remarkable for its accuracy. Our sacred poets, both of the Herbert and Crashaw school, and of the Wesleyan and Dissenter class, are not named. Of Robert Hall, or Andrew Fuller, or John Foster, or Richard Cecil, we have not a word. The practical evangelical workers, as Howard and Elizabeth Fry, are, however, recorded with due praise; and, with a few pardonable slight inaccuracies, Guericke has given a good account of the various British and American evangelistic efforts of the last generation and the present. Our Home Mission exertions might have received more full notice. In more than one place, Guericke has spoken out with becoming warmth against the brutal conduct of the "Grande Nation," in trampling down the liberties of Tahiti in the interest of the Papacy. Passing to Continental matters, Guericke has bestowed much pains on the post-Reformation history of Romanism. Here and there slight errors occur, and he scarcely does justice to the preachers of the time of Louis XIV. The Baian, Jansenist, Quietist, Quesnelian, Febronian, and Sailerian controversies are well described. The Hermesian disputes are also noticed; but the more recent pamphlet warfare, and investigation by Rome about the philosophy of Gunther and Veith of Vienna, are passed over. While the fierce bitterness of a portion of the Romanist writers of Germany, especially perverts from Protestantism, is properly adverted to, it would have been more candid to have given some account of the marked revival of theological learning, especially in its dogmatic and historical branches, which the last forty years have witnessed as characterising the Teutonic Romanists.

Of Lutheranism, Guericke ever writes with the ardent affection of a devoted son. "The Evangelical Lutheran Church," writes he (vol. iii., p. 349), "founded truly and entirely upon the Bible, in living holding fast of Christ, the salvation-bringing corner-stone of the Word, she is, in relation to the two other Western Churches (the Romanist and the Calvinist), the Church of the pure word, and, at the same time, of true mediation.[1] The Lutheran Church manifests herself as the truly Catholic, as the living continuation of the one holy, universal Church, which has received, unimpaired, into herself the rich treasures of the foregoing centuries, defended as thoroughly against heresy as opened to further learned development. In her appears the Western Church system reaching the most pure and the most vigorous unfolding,—the Christian, generous spirit originated by Boniface and Charlemagne, attaining to self-direction, and to emancipation from her Romish instructor, which had become her tyrant, and therefore now appearing in full religious maturity and beauty. In her symbolic books, a purity of doctrine unfolds itself, such as never before had been witnessed in the Church since the Apostles' time; and this characteristic, springing as it does from her innermost principles, manifests itself in an equal degree in her whole organisation throughout." Elsewhere he says: "While the old Catholic Eastern Church ignored all reformation, the Roman Catholic Church formed itself, in connection with the Reform, into a counter-Reformation, holding fast the characteristic marks of her existing system. Thus was the Western Church necessarily separated into a new Roman Catholic and an Evangelical Protestant. But Protestantism also, while asserting the principles of the Reformation in a very diversified manner, more or less adequately representing the essential principles of the Divine Word, either as objective and realist, or subjective and spiritualist, divided itself again into two Churches—the Lutheran and the Reformed; and while these two Protestant, as well as those two Catholic Churches, collectively maintained the platform of the catholicity of the first ages, a multitude of Western sects emancipated themselves from this catholicity, and formed themselves into an Acatholic development." (Vol. iii., p. 251–2.)

With such views of the essential superiority of Lutheranism over all its rivals, and of the excellence of the two original forms of Protestantism over all other divergencies of later origin, Guericke has in this third volume, which is much larger than either of the two preceding, and forms in this a striking contrast to the brevity of the corresponding portion of Gieseler's work, carried through with thorough assiduity and research the History of

[1] Holding the due medium between extremes.

Continental Protestantism. He adopts for periods, Reformation, Particular Development, Decay, and Revival—roughly answering to the sixteenth and three following centuries. The story of the Reformation itself occupies considerably more than a third of the volume. One important subject has not, in this part of his work, received from Dr Guericke adequate attention—the desire for reform felt by a considerable number of persons in all ranks of life, and both laymen and clergymen, who yet, from timidity, Church views, or other reasons, did not join the Protestant ranks. In a note, he gives various instances of different Protestant doctrines maintained by a larger or smaller minority among the Fathers of Trent (iii. p. 254). But this only very partially, and, in one aspect, brings out what we mean. Again, what he states about Carranza, Archbishop of Toledo, is true, so far as it goes (iii., p. 248). But to the full understanding of the case—and Carranza was not only remarkable from his character and exalted rank, but was the representative of a class—it ought to have been added, that he had contributed greatly, along with Pole, to the restoration of Romanism in England, under Mary; and that the book, on account of which charges of heresy were brought against him, was examined by a committee, appointed by the Council of Trent, and declared free from all "uncatholic taint."

The History of Sacred Song has been elaborated with great care by Guericke. The hymns of the ancient, the mediæval, and the modern German Church, have been studied by him with great care; and the various poetical forms, which the religious sentiment has assumed from age to age, are feelingly and skilfully enumerated. Various quotations are given in the earlier periods; the vast number of the modern contributions to Christian Song which Germany has furnished, is, we presume, the reason why quotation is not practised in the post-Reformation era. It is with a stanza of a Lutheran hymn, contemplative of the glorious future of the Church, that Guericke closes his last volume.[1] Christian Art receives attention, but not to the same degree. It would have been desirable had the history of preaching, from age to age, been investigated and developed with equal care. Assuredly the sermon has not played, in instruction or impression, an inferior part to the hymn.

From Guericke we quote his character of Tertullian (i., pp. 228–231). "Q. S. F. Tertullian, born at Carthage, about A.D. 150, died about 220, the first Latin writer among the Christians; and that ancient Church Teacher, who represents to us the Catholic, and, in addition also, the un- and anti-Catholic element

[1] Guericke has not availed himself of the labours of Mone on the Mediæval, or of Ozanam on the Franciscan Poetry. Both were worth considering.

of the Ancient Church, a hero of the old theology, great also in one-sidedness of principles, but who, if any, may be considered as the first prophetic director to a future reformation; a man, distinguished by glowing piety, burning zeal for Christian truth and the spread of the Gospel, by extensive acquirements, penetration and wit, fire, energy and depth of mind and speech, but also characterized by unbridled fancy and stormy vehemence, and by a propensity to gloomy earnestness. Before his conversion, he was probably a rhetorician and lawyer (compare Euseb. H. E. ii. 2, and the fragments of one Tertullian in the Pandects.) His becoming a convert to Christianity took place in his early manhood, probably under Commodus. In his inner life has developed itself the history of the existing Christianity. Of especial importance to his development was a visit to Rome, which he mentions (Apolog. c. 17, and de cult. fem. i. 7), and which, according to Eusebius, H. E. ii. 2, and Jerome catal. c. 63, was something more than a brief stay. He became afterwards a presbyter at Carthage; and in the time of his subsequent literary activity, three periods are to be distinguished: an apologetic anti-pagan, a montanist anti-catholic, and a polemical anti-gnostic, not, however, as if these exactly succeeded one another. Becoming a Montanist, probably about 200 or 201, because the Catholic Church had in his view departed from its original simplicity in a sensuous direction, and had ceased to be a Church of the Spirit, he threw himself with his whole soul into his new views, and manifested an increasingly anti-Catholic temper. His later writings, however, do not give us accurate information as to the time in which they were composed. His latter days are involved in obscurity. . . . He was too thoroughly a Father of the Church to be comfortable as the leader of a sect. It was a true *Church* of the Spirit, not a *sect* of the Spirit, that he desired to see; and this desire attended him through the closing years of his life, until he disappeared, quiet and unnoticed. The wish of his life remained after his death, and, indeed, propagated itself until it found vent in the contests and the victories of the Reformation. His writings are the most important source of our knowledge of Christian antiquity. They are a rich storehouse of archæological and doctrino-historical information. They exercised an important influence on the formation of the Church terminology in the West. On the other hand, they are full of African provincialism and juridical expressions; and everywhere show the effort of the profound and fiery man to express his thoughts in a memorable and distinctive form of speech."

We may smile at the statement of Guericke, in his Preface, that he, in all the impressions of his work, has ever been "the earnest and stedfast, the *ecumenical* and *irenical* Lutheran, and

will ever be so, as long as he breathes." But, if the polemic intrudes where the historic only should sway, we must remember the harsh treatment which strict confessional Lutheranism has received in Prussia and elsewhere, in the present century; and, in consideration of his research, his devoutness, his firm grasp of evangelical truth, his careful exhibition of the practical as well as the intellectual manifestations of Christianity in each successive era, we may well overlook the partisan confessionalism of the Halle Professor. The history has, besides a full table of contents and index, a valuable chronological table, appended to each volume.

Has the reader ever perused Dean Milman's work, the History of Ante-Nicene and Latin Christianity? If not, the nine volumes, except to those who, with Dr Chalmers, shrink from "a big book," are well worth reading. The non-German scholar who has made himself acquainted with the Dean's history has a good idea, not indeed of the style, but of the spirit of Hase. What Milman is on a large scale for a part of Church History, that the Jena Professor is, in a condensed form, for the whole of it. The same all-sided cultivation, the same literary power, the same pictorial treatment, and the same lowness and vagueness of theological view.

Introductory to his Church History, may be considered Hase's Life of Jesus. This book is most valuable, as giving the student references to the vast amount of literature connected with each step of the Gospel history. But it is semi-rationalist in tone. The instances of demoniac possession are resolved into animal magnetism, and other modes of non-supernatural influence. The appearances of angels in the New Testament, and the rising of many of the saints who slept (Matt. xxvii. 52), have no objective reality. The rending of the vail of the temple is equally devoid of historical basis. Particular verses and passages, as Mark xvi. 9, are pruned away, as Hase's subjectiveness considers them destitute of harmony with the rest of the Gospel narrative. All this will prepare an orthodox reader to come to Hase's Church History with a feeling that, though the pleasantest of companions, he is not the safest of guides.

Yet, of all Church Histories, this is the one most suited to the general reader. No one will ever weary over Hase's pages. In the least interesting periods, the felicity of his style, and the vigour of his painting, carry him triumphantly over the ground. No German writer is more difficult to translate, from the very excellencies of a literary character, which he uniformly displays. Though his book is only a single octavo volume of about eight hundred pages, it contains full, though condensed, information on many points which historians of much greater amplitude of nar-

rative have passed over or treated but by the way.[1] The work of Guericke, for example, is more than twice as large as that of Hase, but the latter will inform on not a few points, for which the former will be appealed to in vain. The Jena Professor, however, is sadly deficient in the devout spirit of Guericke. The Godward aspect is ever seen in Guericke, but the manward has never been more brilliantly presented than in Hase.

Of the Lutheran worship Hase thus writes:—"While the Reformed Church went back to the simplicity of apostolic times, the Lutheran worship developed itself from the Romish Mass-ritual according to the reforming view, that the language of each nation is to it a holy tongue. When Luther (1526) put forth an ordering of Divine Service, he guarded himself from the supposition that therein a general law limiting Christian freedom was contained. Secret Confession was retained, but as a matter left to individual freedom, and for the common people. The holy seasons were confined to those for which scriptural events could be pleaded, only Marian and Apostolic commemorations remained in some national churches. An annual celebration of the Reformation Festival took place first (1688) in Saxony. Luther was not of the opinion that the Gospel was the enemy of the arts, but would willingly see all the arts, especially music, employed in the service of Him from whom they are derived. Albert Durer was imbued with Luther's spirit. The faithful Lucas Cranach was the painter of the Reformation. Church Song was first, through Luther, raised to the character of a Sacred People's-Song, while (through translation) the newly-born hymns of the old Church formed, along with the poems he himself composed, a stream of holy song in the German Church. The individual hymns appear as the words of a great lyric-epic poem, which the spirit of Christian song composed, as the centuries rolled on."—(Pp. 475-6.)

Dr Kurtz is professor of theology at Dorpat. His Church History is the most recent in respect of date. With his large work on the same subject we do not, at present, occupy ourselves, as it has, as yet, only been issued as far as the time of Charlemagne. The compendium before us is that book on Church History which the student of German should first read. Were it translated, it ought every way to supersede Mosheim in our divinity halls. It is admirably adapted to the student's purposes, giving, in a portable form, and with great clearness of expression and vigour of touch, all that one commencing the study, cares about knowing, or need, at that period of his studies, know. A comparatively slight expansion and correction of the British and American portions would thoroughly fit it for use to the candidate

[1] Thus, he alone, of those before us, refers to the Wodrow Society Publication of Calderwood's History.

for the ministry in this country and the United States. Kurtz, however, is deficient in acquaintance with non-German sources of information. Thus, in his history of French Protestantism, he derives no aid from the recent works of Haag, Drion, and Weiss. He somewhat, we think, overrates the effect of the religious, and underrates the effect of the political part of the Romanist reaction of the seventeenth century. We suspect that comparatively few perverts were made, even by the most amiable and accomplished of Romanists, either in France or Southern Germany. It was court favour that drew over the noble, and military force that terrified into external proselytism the poor.

Kurtz, after the apostolic age, divides his subject as follows :— I. The Ancient Classic Form. II. The Middle German. III. The Modern German Form. The last is subdivided into four eras: First, to the peace of Westphalia; second, to the rise of Rationalism, 1750; third, to the end of the War of Freedom, 1814; last, to the present time (period of revival of Christian and Ecclesiastical sentiment, and likewise of Communistic and Pantheistic attacks on religion and society).

He thus describes the Romanism of the seventeenth century :—

"This age was a period of glory for the Catholic theology, such as has never been seen from the twelfth or thirteenth century to the present day. In the free-minded Gallican Church, above all other parts of the Roman obedience, there manifested itself a rich, lively, and liberal life of scholarship. The Parisian Sarbonne, and still more the orders of the Jesuits, the Benedictines of St Maur, and the Oratorians, contended with one another in theological, and especially in patristical and ecclesiastic-historical erudition, and the contemporary vigour of the Reformed theology in France was a powerful spur to emulation. The arts of design, and especially painting, had outlived their period of bloom. On the other hand, church music developed itself largely, but in an effeminate and secularised form. In Spain and Germany only church song found votaries, worthy of our notice."—P. 522.

Kurtz has not grown careless in his task as he drew near its close. If his last period, from 1814 onward, shows some deficiencies in its account of British philosophy and theology,[1] the view he gives of German authorship in both is most admirable. Both Protestants and Romanists are treated with great fulness and impartiality. The whole twenty pages which go over and (for a compendium) exhaust this subject, would be worthy of extract, had we space. To many of our readers much that these pages contain would be new.

[1] It is very singular that such writers as Archdeacon Hare and Dean Trench, who have done so much to recommend the study of German theology, should be ignored by German historians of the Church.

Foremost among Romanist theologians in Germany stood Möhler, professor, first at Tubingen and latterly at Munich. His "Symbolik' called forth a host of answers both from the supernaturalist and the rationalistic sections of the Protestant Church. His Monograph on Athanasius, and other smaller works, were but to pave the way for an extended History of the Church, which would have, from a Romanist stand-point, been the rival of Neander's book. But his death, when little more than forty years of age, prevented the accomplishment of this great design. We possess from his pen, on Church history only several able reviews, contributed to the Tübingen Quartal Schrift, and an introductory lecture, printed in the posthumous collection of his smaller writings. In this he divides the subject into three parts—the Greek-Roman, the German, and the combined Greek, Roman, and German eras—answering roughly to the ancient, the mediæval, and the modern Church.

Since Möhler's death, no German Romanist has attempted to give in lengthened detail the history of the Church, and thus to rival, beyond the Rhine, the voluminous work of the Abbé Rohrbacher. But various histories, on a smaller scale, have been issued, of which among the most popular has been that which we now review. In earlier life, Dr J. J. Ritter was a Hermesian, but, like Berlage and others of the Rhenish school, he gave up those views, when condemned by Rome. During the period of the Ronge controversy, he came forward as the strenuous opponent of that reformer, whom he mentions with peculiar bitterness in his history. He translated into German Lingard's Antiquities of the Anglo-Saxon Church, and appeared in the polemical field with a series of rather fierce letters to Eichler, on the charges brought by him against the Romish Church. He is a professor at Breslau, and dean of the cathedral there.

The Church History of Ritter is superior to the others we notice in the list of previous works on the subject. The Italian labourers in the field, overlooked by Protestants, receive due notice from him. Strange to say, he gives the most extended catalogue of British books on this subject, though somewhat incorrectly, as he calls Haweis a Presbyterian, and Priestley an Independent!

Ritter divides his subject into five periods—the first to Constantine; the second to Boniface, 719; the third to Gregory VII., 1073; the fourth to the Reformation; and the last to the present time. His book is written in a clear and pleasing style, never wearying the reader by lengthened or involved sentences. Of course, there is a strong Romish bias, and, on contested points, assertion not unfrequently takes the place of proof. We have, however, gone over a number of his quotations from the ancient

writers in his first and second periods, and have, in general, found them to be depended on. These two periods are the most satisfactory part of Ritter's work. Neither with the mediæval nor the modern part of his subject has he taken the pains which he has evinced in the ancient. On inaccuracies in his representation of British events and characters we shall not dwell, having trodden that ground already, in our reviews of Gieseler and Guericke. He represents Moore's Travels of an Irish Gentleman in Search of a Religion, as a much more influential work than it ever was. What wonder it excited (and it, in this country, soon passed away), sprung from the singularity of an amatory poet showing proof of having, at his leisure hours, amused himself with dipping into the fathers! Whatever of Moore goes down to posterity, and it may, perhaps, not be more than Jeffrey anticipated—three per cent. of Southey—it will not be the Travels.[1]

Ritter shows himself somewhat deficient in knowledge of Protestant monographies on the writers of the ancient Church. He sometimes traces Church customs too high. Thus there is no evidence of the use of Baptisteries, in the first period, as he implies. With the recent Oxford editions of part of Eusebius and Theodoret he seems unacquainted. To Augustine he does scanty justice; nor is it correct to say, that the charge of semi-Pelagianism is brought only by Lutheran writers against the modern Church of Rome. The independence of the ancient British Church on Rome is not to be refuted by mere assertion on his part, or sophistical twisting of minor points of the argument. It is not perfectly certain (though probability is in its favour) that Pelagius was a native of this Island. Hase adopts the view, which many Frenchmen hold, that he was born in Bretagne. Even while we are writing, we see that Saint Rene Taillandier claims him as a Breton, precursor of Abelard and Des Cartes, in freedom of thinking.—(Revue des Deux Mondes, Sept. 1858.)

Of the English Protestant writers, from Inett to Soames, who have given attention to the history of the Anglo-Saxon Church, Dr Ritter seems quite unaware. Nor has he paid more special attention to those who have written upon the medieval British Church. To Anselm, the greatest of our medieval prelates, he does but limited justice, never so much as mentioning his era-marking book, "Cur Deus Homo?" Altogether, indeed, his view of the scholastic and mystic writers of the middle ages is disappointing and superficial. A subject, which we would have expected a learned Romanist to have especially elaborated, is

[1] Yet, on the Continent, the book seems still to be read, as we may gather from the very laudatory article on Moore (by Kerker) in the "Kirchen. Lexicon, Erg. B., p. 807, 810.

treated incomparably better both by Guericke and Kurtz. The work has a distinctive feature of importance in its chronological list of the Councils, general and provincial.

The following extract is from Ritter's prefatory remarks to the history of learning in his second period :—

"To the right estimate of the Christian literature, in its relation to the classical, we must remember that the classical writers knew no higher qualities than beauty and masterly expression. The matter was considered subordinate. On the contrary, the Christian authors considered style a secondary thing to subject. The Christian religion, which was the subject of their writings, presented them with hitherto unknown truths, new and exalted ideas, which could only with difficulty be adapted to the existing forms of speech. A large proportion of the writings of these men was called forth by special occasions, and the 'nonum prematur in annum' was a precept thus impossible to be complied with. Cicero has, with scanty exceptions, stamped his impress on the whole of Roman literature. What he was for the classical literature, that Tertullian became for the Christian literature of the West. As an African, he was addicted to the Oriental style of pompous and rhetorical writings. The most influential authors of the Latin Church, in its earlier stages—Minutius Felix, Cyprian, Arnobius, Augustine, Optatus—were his countrymen. Besides, the writers of that age could not escape the influence of the debased taste of their contemporaries.—Vol. i., p. 244.

Here, apparently, Ritter takes for granted the Italian birth of Lactantius, now generally accepted in Germany, in place of the older belief, that he was an African. Assuredly the author of the "Institutiones" shows no trace of Tertullianite influence in his style. A little farther on, he speaks of the writings of Cicero as corrupting the pulpit eloquence of the great Eastern fathers of the Basilian age. But what evidence is there that the Roman orator was especially studied by Basil, the Gregories, or Chrysostom? The more florid of the Greek orators were much more likely to have affected their style for the worse.

The next work before us is not a general Church History, but though only the narrative of a special period, we have taken it here as the representative of views, more or less prevalent in Romanist Germany, during the last century. Febronius has sown seed on that soil, which three generations have seen produce harvest after harvest. Von Wessenberg was a man of very varied accomplishments—a poet, and a connoisseur in the fine arts. For some time he held the position of coadjutor Bishop of Constance, but his liberal views excited suspicion at Rome, and the government of Baden sacrificed him to Papal ill-will. He spent his latter years in privacy, and gave to the world as his last literary effort the work we now notice, "The History of the

Councils of the Fifteenth and Sixteenth Centuries." In this his object, like that of Dr Hirscher of Freiburg in his book on the "Union of the Confessions," which the Tractarian Coxe of America translated, is to contribute to the removal of the divisions of the Western Church. Hirscher, however, recanted on the application of pressure from Rome. But Wessenberg did not. His work, on its appearance, received severe criticism from Hefele and other high Romanists.

The first volume of Wessenberg's History is introductory. In it we find, with no very marked plan, a number of statements and remarks upon the history of the centuries preceding the Fifteenth. The want of system greatly detracts from the effectiveness of the volume, and we cannot wonder that this fault, in addition to the dislike with which a liberal Romanist was regarded by the stricter members of his church, has injured the circulation of the book. Besides, the work is very deficient in the warm religious feeling of Sailer, the "German Fenelon," and his school. Wessenberg did not object to the doctrine of his church at all. For the sake of peace, he would have given up some questions, but even in regard to such matters as Image Veneration, and the Mariolatry of the Basle Council in affirming the Immaculate Conception, he expresses no dissent. His book has thus failed to commend itself largely either to Protestants or to Romanists. Neander, when he treats of the Constance and Basle Councils, never mentions it; Bungener, in his popular History of the Trent Council, never alludes to it.

In his second and third volumes, Wessenberg goes over the history and the decrees of the Constance, Basle, and Trent Councils, and his fourth volume is mainly taken up with comments upon the proceedings of the latter in its bearing upon the subsequent history of the Papacy, the Episcopate, the relation of Church and State in Romish countries, the development of Jesuitism, and the prospects of reunion with the separated Protestants. His views are very much those of the minority at Trent, who (with some few exceptions, whose doctrinal views approached to Lutheranism) wished considerable disciplinary reforms, and considered these sufficient to restore the broken unity of the Latin Church. It is the error of non-doctrinal writers, like Wessenberg, to under-rate the influence of dogma, forgetting the great fact, of which all Church History bears witness, that morals never can long survive indifference to doctrinal truth.

On the other hand, Wessenberg exhibits a thorough hatred of Jesuitism, a warm desire for Bible circulation (in the translation of Leander Van Ess), and an anxiety for the reforms, which at Trent were urged in vain by Austria and Bavaria, and

partially by France, such as the marriage of the clergy, and the concession of the cup to the laity. He views the yielding the latter point to the urgent entreaties of the Bohemians by the Basle Council as a model of ecclesiastical wisdom (Vol. ii. 346–7). His theory is, that had the above-mentioned Council, in the continuance and development of the views of the Fathers of Constance, been adequately supported in its opposition to Eugenius IV. and Nicholas V. by Germany and the other Western Powers, the Reformation of the next century would never have been called for; and if separation from the Latin Church had taken place at all, it would have been on a scale as small as that of the Waldenses or the United Brethren. Again, had the States still remaining "Catholic" been agreed in their reforming demands, and rigorously insisted upon the Tridentine Fathers carrying these into decree and execution, the great mass of the Protestants would have been brought back. This Conciliar theory is, however, at variance with a right view of facts. The supremacy of the Bible was fully brought out by Wickliffe, implied, though not thoroughly developed in Huss, and made a permanent stand-point by the Sixteenth century Reformers. Neither the Constance, Basle, nor Tridentine Council would have conceded this. Besides what claim had these Councils to be considered ecumenical? Northern and Eastern Europe were scarcely at all represented in them; and had Southern and Western Europe any right to decide for the other half of the Continent? No Latin Council has ever had even the amount of claim to the name "General," which the Oriental Synods from the Nicene to the second Constantinopolitan had to that title, so far as the Greek Church, at least, was concerned.

The work of Wessenberg is valuable, as presenting in a portable form, a vast mass of evidence relating to the gross corruptions in life and practice prevalent among the Romish clergy, especially in the centuries when these great Councils were held. The testimony, both of Romish princes, and of honest Romanist authors, affords ample justification of the Protestant revolt from a communion, where such abuses, though lamented by some, have never been effectually grappled with. The Roman Curia has ever been the decided enemy, even of disciplinary reform, and the Curialists have here, at least, practically conquered throughout the Roman obedience.

"The Pope," says he, "sought to curb the efforts of the Council of Trent for reform, and confine them within narrow bounds. Rome declared the Inquisition and the employment of physical force the best means to suppress heresy. Her defenders maintained, that without her interference the whole of Europe would declare itself on the side of the Reformers, and give these the superiority everywhere.

The time when Church authority itself was struck at, was not one in which reforms could be properly considered. The most important question at such a period, was to preserve the authority of the Church, and this was practicable only through opposition to all reform. If all reform could not be hindered, then the next course was to make it as much as possible dependent upon Rome. . . . It is true that Rome could not take part in a thorough satisfactory Church Reform, without purifying her own power from all abuses and exorbitant claims. But it was then thought, that the whole strength of the Church lay in the authority of the Roman See. If this is only preserved unimpaired, sooner or later she will be able to regain the countries which have by their own efforts shaken themselves loose from her. It was, further, a topic of consolation for the loss of so many nations in Europe, that in other parts of the world, especially in the West Indies, many were becoming converts to the Catholic faith. . . . The boldest claims were again publicly made, and a notable evidence of the extension of Papal energy since the Council of Trent, is furnished by the *Bullarium*, for since this period the number of Roman Bulls has greatly increased, in comparison with earlier times; and these have much more venturously than formerly, claimed jurisdiction over the details of Church life, forms and practices. The Pope possessed the power of interpreting all decrees of Council, even those which limited (in words) his authority. While the Protestants declared the Pope to be Anti-Christ, many Catholic theologians elevated him to be in place of God (Vice-Gott). No wonder, then, that Pius V., in 1568, dared to order in all churches the annual publication of the Bull *in coena Domini*, which had hitherto been proclaimed only in Rome on Maundy Thursday. This Bull, the quintessence of all the extravagances of the Papal claims, excommunicates all who appeal from the Pope to a general council, who teaches the superiority of such a council to the Pope, who reads, possesses, and prints heretical books without Papal sanction; who appeals from the commands of the Pope or the ordinances of his legates, commissaries, and judges, to secular courts of law ; all princes who attempt to limit ecclesiastical jurisdiction, or to interfere with the rights of the clergy, who pass laws against the freedom of the Church, or suffer heretics to exist in their dominions. Urban VIII., reckoning upon the weakness and the want of union of the Catholic powers, gave forth this Bull, in 1627, in still stronger terms."—Vol. iv. p. 253–7.

Wessenberg does not add, that for Pius there was the excuse (sorry though it be) of sincere fanaticism; but Urban, on whose table, as Ranke tells us, were found not books of theology or practical religion, but "the last new poems, and plans of fortifications," had no such extenuation of his conduct to plead.

Before passing from these works of Romish authors, we may remark, that a number of elaborate articles on Church History, especially in its earlier periods, have appeared from the pens of

Hefele, Drey, Aberle, Herbst, and others in the "Tubingen Quartal-Schrift," during its now forty years course of activity and influence. In the pages of the "Kirchen-Lexicon," also (which, with its Protestant rival the "Real-Encyclopædia of Herzog, is indispensable to every German-reading clergyman's library), from the same and equally qualified pens, a number of learned and instructive papers will be found. With German Romanists, Church History is as decidedly a strong point as Exegesis is a weak one. The last work on our table differs essentially from all the preceding, in being, not a continuous history, but a series of ecclesiastical biographies, representing the various periods of the Church. It has been not far from twenty years in progress, and its learned author has now completed the Ancient and Mediæval Periods. Exception may be taken, doubtless, both as to the individuals admitted, and those excluded. That list, assuredly, does not err on the side of excessive strictness, which includes both Abelard and Heloise in full detail. We have a volume on the Mystics, Tauler, Suso, and others; why have we not one of equal extent on the Scholastics? Why are not such writers as Hugh of St Victor, Aquinas, and Bonaventura, treated of?

Apart, however, from such objections, the now voluminous work of Böhringer is eminently worthy of study. He is deficient in cognisance of modern writers on his subjects, perhaps deeming it more conducive, alike to simplicity and vigour of treatment, to confine himself to the works of the authors he treats of, and the biographies, by those, who were, if not contemporaries, at least, persons, not far removed in time from those heroes. Thus, we have no mention of "Montalembert's Life of St Elizabeth," of "Chavin de Malan's Biography of St Francis of Assisi," or of the work of his fellow-Swiss, Hurter on Innocent III. That the last-mentioned became a pervert to Romanism through his one-sided study of the Innocentine Age, is no reason for ignoring his book. A German writer would find, from the very difference of the national characters, benefit in paying attention to the mode of treatment pursued by French authors. Böhringer, however, makes an exception in favour of this country. He has carefully paid attention to the works on Wickliffe, by Lewis and Vaughan; that by Le Bas he probably considered too merely popular for consideration. Dr Vaughan's elaborate book is viewed by Böhringer as too limited in aim, and too nearly anti-Papal in the presentation of its subject. Böhringer has taken great pains in sifting his materials, and in separating, as in the case of St Elizabeth of Thuringia (or of Hungary, as she is sometimes called), the historical from the legendary. This life gives us a vivid picture of the thirteenth century, when the Mendicant Orders were

just beginning to exert their wide and long-lasting influence in Europe. Early in life taken from her father's court in Hungary, and betrothed to the heir-apparent of the Thuringian crown, exposed to many slights and injuries from unfriendly female connections, yet bearing them all with the meekness and patience becoming a Christian, she proves herself fit for the possession of royal honours, when her father-in-law dies. Through all her married life, it is as "Brother" that she speaks of, or to, her husband, with whom, from childhood, she had been brought up. Only to please him does she ever put on princely attire; plain, even to an extreme, in her dress, when she can uncontrolled carry out her own will. Her husband leaves her to join the Crusaders, and dies on Italian ground, before he can take part in his Eastern enterprise. Relieved, at length, from the sufferings (which one is disposed to think over coloured), to which her husband's death exposes her from his brother Henry, she denuded herself of all her possessions, and retired into the Tertiary order of the Franciscans. She took a warm interest in the training of the young, and in all other works of beneficence, according to the views of that period. In that long past Ante-Chadwickian era, we are not surprised to find her so insensible to sanitary views, as to be averse to the use of the bath! About her personal appearance, our lady readers will be disappointed to learn, that we possess no contemporary statements! Even the Roman Breviary does not assert that any miracles were wrought by her during her life, though it affirms, "immediately after her death, numerous wonders were accomplished, which, being duly substantiated, Gregory IX. inscribed her in the number of the saints." (Office for 19th November.)

It is a somewhat fanciful remark of Böhringer, in his volume on Wickliffe, that Northern England was German-Saxon, and Southern England Romanic, in the character of its population. It would have been more correct to say, that in the former there was a strong Danish element, which was wanting in the latter. On the influence of Wickliffe's writings and followers in Scotland, he says nothing. The very existence of the Lollards of Kyle seems unknown to him.

"Wickliffe," says he, "was confined in view to England; he is thoroughly and limitedly a Briton. Yet he was connected with the Continent by a chain of powerful influences, as we shall see in Huss and Jerome (of Prague). In the Reformation of the sixteenth century, of which he was the boldest and most thorough forerunner, he was not, at least, by the German Reformers, duly honoured . . . Luther ought, at least, to have shown to Wickliffe the same justice as to Huss, who, in his doctrine, followed the English Reformer as his master. But Luther was better acquainted with the Bohemian than with the

English Reformer. Melancthon brings against him two charges, that he neither fully understood, nor urged upon others, the doctrine of Justification by Faith, and that he insidiously mingled together the Gospel and politics. There is, however, a specific connection between Wickliffe and the Reformers of the Swiss type. There is the same direction of the understanding, ruling over feeling and imagination, without mystic, contemplative, romantic elements; also the same strong, austere character, as in Calvin; the same energetic protest against ecclesiastical abuses, and less disposition to spare the existing, marking, in Reformation times, the difference between the Lutheran and Calvinistic churches; the same looking back to the original apostolic Christianity, even in forms, with less value attached to historical continuity; the same especially *moral* religious apprehension of Christianity. Even in particular dogmas, we find the same resemblance; as in the doctrines of Determinism, Predestination, Creationism, (as opposed to Traducianism), the view of the Sacraments in general, and of the Lord's Supper in particular. In worship also, there is the same spiritualising, simple view, conforming itself to the example of the original apostolic age; the same Puritanism; the same rejection of saints' days, and other post-apostolic observances" (*Johannes v. Wykliffe*, p. 604–7).

It is, after all, scarcely fair to Böhringer to treat of his work at the close of an article. It is of sufficient value and distinctiveness to be entitled to a long paper by itself. In it the author well upholds the literary honour of German-speaking Switzerland. We part from him, convinced that this century, fertile as it has been in valuable German contributions to Church History, has produced few books more worthy of present consideration, and more likely to meet with future study. It is not a book which will die before its author, or speedily follow him to the grave.

In conclusion, we rise from the perusal of these German works, from Protestant or Romanist writers, with somewhat of a feeling of shame for our country's deficiencies. The first Church History, produced on British ground, so far as we know, was that of Patrick Sympson, one of our old Presbyterian worthies. Of him, we read, "he was well versed in reading of the Fathers, both Greek and Latin; . . . a man well versed in the Fathers and Church History, yea, in all learning" (*Wodrow Society; Select Biographies*, vol. i., p. 74.–303). Nearly two centuries and a half have passed away, since Sympson's book was published, and how little has Scotland kept the promise she then, amid all the throes and struggles of an imperfectly settled Church Government, gave! Peace has long since come. But where are its fruits? In this department of learning, few or none. One volume from Principal Campbell; another from Dr Welsh! True, England has little more to boast of, than Scotland. Con-

sidering the ample leisure, which her great academical foundations give, it is the more to her discredit that she has used these so little. And when we find in her chief seats of learning,

"Isis and Cam, to patient Science dear,"

as Wordsworth sings of them, such men as Blunt and Hussey, looked up to as models of professorial erudition and vigour, giving faith in their recently issued Prelections,[1] matter well studied, indeed, from the old High Church seventeenth century standpoint; but, in the case of the former, with an entire, and, in the case of the latter with an almost total ignoring of all that Germany has done in the field, we cannot help feeling, that tradition and conventionalism must be rooted out from our Southern seats of learning, before Germany will ever be, we shall not say equalled, but approached to. It is the same in editions of ancient writers. The Oxford Theodoret[2] is beautifully got up; but, here also, Germany is forgotten. Let us hope, that the long-promised Sozomen will be issued, by and by, by some Oxonian, who will not disdain to make use of the ample materials which Teutonic industry has placed within his reach. Let us hope also, that the time is not far remote, when the healthful emulation, which we have in this paper shown exists between the Protestant and the Romanist sections of German theology, will be exhibited between the Scottish and English divisions of our island. Edinburgh and Oxford, Cambridge and Glasgow, might then meet in profitable and honourable rivalry on the Church History field.

[1] "Blunt's Lectures on the Early Fathers." "History of the Church in the first three Centuries." "Hussey's Rise of the Papal Power."

[2] Theodoreti Eccles. Hist. Oxon. 1854.

ART. IV.—*The Ethics of Aristotle illustrated with Essays and Notes.* By Sir ALEXANDER GRANT, Bart., M.A., Fellow of Oriel College, Oxford. Vol. I., containing Essays on the Ethics of Aristotle. London: J. W. Parker and Son. 1857.

THE influence of Aristotle upon Oxford is one of those strange psychological phenomena which ancient philosophers would have resolved into an indeterminable chance, and which we moderns must be content to accept as the result of an unknown law. There are things beneath as well as beyond reason, the discovery of which "passeth man's understanding." On the one side lies the mystery of fellowship, and on the other is the mystery of fascination. "*Corruptio optimi pessima;*" and if on the one side human sympathy culminates in unapproachable light, it culminates on the other in impenetrable darkness. And in Oxford Aristotelianism there is the fusion and synthesis of these; it is too rational to be wholly bigotry, too conservative to be wholly conviction. It has all the sacredness of a traditional doctrine. It is, in short, a kind of intellectual religion, a creed rather than a philosophy, the "*Quicunque vult*" of Oxford—involving the lesser excommunication for those who doubt, and the fulness of anathema for those who deny.

So far as it can be reduced to reason, it has two chief causes,—the one is external and objective, the other internal and subjective: the former depends on the character of the Aristotelian philosophy, the latter upon that of Oxford thought. With regard to the former, there is in Aristotle a perfect adaptation to the Oxford theory of education: he is the end and fulfilment, as well as the law and cause of it. He is the type of the philosophy of compromise. There are no "extreme views" in him. His meaning lies on the surface, without seeming to be superficial. He has the calm gentlemanliness of a man of the world, and yet takes rank as a philosopher. He has a fulness of matter and a perfection of method: he strives to make a man περὶ πᾶν πεπαιδευμένον, but never for a moment loses sight of the ὡς δεῖ. He rises sufficiently high above popular notions to be able to guide and interpret them; but not so high as to have absorbed perspicuity in depth, or to have forgotten that those who cannot fathom a man's thought, content themselves with criticisms of his apparel. And the nature of Aristotle's method, even more than his attention to it, must be looked at in the light of a cause. For it is a method at once all-crushing and all-embracing, which seems to

encircle with its coils the whole sphere of possible knowledge. Things sacred and things profane come alike within its grasp. No thought is too high for it, no subtlety can escape it. Its simple forms seem to afford a most certain detection of fallacy without any great elaborateness of effort. Its clear deduction from axioms about which few are sceptical, give it a dominion over both sides of every controversy. It wraps the minds of those who submit to it in the folds of inextricable argument, and yet offers no show of violence. It is "*totus teres atque rotundus*;" and herein, perhaps, is the true secret of its strength: for the Oxford mind is too often content to be like the Oxford dress—neat, loose-fitting, and symmetrical. And, again, it must be remembered that Aristotle was the successor and heir of the Sophists. The sophistical method of instruction and theory of education is thoroughly developed in him. They made a man fit for all kinds of work, and ready with an instrument for all fields of thought. Their aim was not philosophical, but practical: they looked not to growth in truth, but to cleverness of political action. All these things, in combination with Aristotle's own perfection of "finish," elevate the Aristotelian writings into the first rank of school-books: their value has been thoroughly seen by Oxford legislators; and hence Oxford has become the great Aristotelian school of England; and its great result has been to shape its disciples to the Aristotelian method, as Cambridge has shaped them to mathematical method.

And, again, the matter, as well as the form of Aristotelianism, coincides exactly with the purpose of Oxford training: especially the Ethics—the Aristotelian philosophy of human nature—the analysis of morals—the classification of duties. They are the resumé of all popular notions on the subject. They are deep without mysticism, worldly-wise without vulgarity. They are one of the simplest of all possible manuals of the crowning point of education—the science of right living and just dealing. Their fault lies not in their error, but in their imperfectness. They are suited for the youth of thought, not for its manhood. And this is what we find for the most part in Oxford—not manhood, but infancy or youth. The first generalisations claim to themselves the name of an universal philosophy: the first glimpse at the causes of things, so wonderful in itself, so high even in its littleness when contrasted with the utter unthinkingness of the multitude, fixes the attention for ever. "It is philosophy," they say, "and for young men it is enough; perhaps depth, after all, will only be dangerous." In one point this is doubtless right: it is true practically, although false theoretically. For the purposes of education, the deep things of philosophy are not required—only the first insight into the reasons of things, the first habit

of generalisation. The true difficulty of philosophy lies in the first step—the first awakening to the sense of darkness, and the first search for light. And herein again Aristotle is the best guide: his philosophy is the safest for learners. The fault lies not in reading him, but in reading him as the all in all—as the *summa totius philosophiæ*, beyond which there is no hope of truth, no salvation for thinkers.

But again, Aristotle is not only the fulfilment of what Oxford wants, he is the representative of what Oxford *is*. The philosophy to which individuals or communities attach themselves is universally the reflex of their own tendencies, and conversely. The idealist attaches himself to Plato, the ultra-nominalist to Hobbes; and so the normal type of an Oxford man reads Aristotle because he finds in him the exact expression of his own "views" on reasoning and human nature. If Aristotle were merely used as a propædeutic—as a valuable introduction to the sphere of philosophy, the attention which is bestowed upon him would deserve the highest commendation, as an instance of practical wisdom and knowledge of the science of education. But the Oxford man does more than this; he *believes* in Aristotle: it is his creed, and more—it is his rule of life and standard of judgment. To him the Aristotelian philosophy is a living reality: all reasoning is reduced to syllogistic forms; all thought is a rounded whole, with no consciousness of the existence of anything beyond, no longing whatever for a glimpse into the mystery of things. And, above all, until lately the whole tendency of Oxfordism was conservative: it was a perpetual retracing of the old paths; speculation was perilous, originality was heretical. There was little freshness of thought, and with this there was little breadth of thought. It was a well, and not a sea: deep enough, but narrow. And for the majority, perhaps, there was not even depth: there was a mere attempt at systematising a few plain facts of ethics and metaphysics—a sophistry, in short, which was only the first remove from the popular view, and whose very glory lay in its mere practical good sense. There was a jealousy of extra-Aristotelian thinking as being unnecessary, if not suspicious, and as likely to end in latitudinarianism, if not in actual heresy. And so the Oxford coach jogged on—opposing Platonism, as it opposed railways, as being contrary to the traditions of the elders and the received notions of things. It was not so much the theoretical disapproval of progress: it was rather the love of ease and repose—the willing acquiescence in opinions which were felt to be entitled to respect—the dislike of the partiality of which every reaction necessarily partakes—the sense of dignity, premature or natural, which keeps old age lashed to its moorings in spite of the temptation of new discovery. And yet, with all

this, there was a presumed independence of thought: there was a vague and half-unconscious belief that Oxford held a position entirely *hors de combat*—that it was utterly unswayed in all these things by precedent, or prejudice, or passion—that it could see the whole sphere of philosophy moving without being carried along itself. In many cases this was actually true: philosophy was looked at as a completely objective thing, whose facts were to be accepted and taught with as little questioning as the Thirty-nine Articles. There was a dogmatic philosophy as well as a dogmatic theology, which, in the one case as in the other, was "*fides quærens intellectum*"—appealing to the understanding rather than to the judgment, claiming to be interpreted as to its meaning rather than examined as to its evidence. This is exactly what we find in Aristotle. No doubt, he looked upon things, as one of his recent editors maintains, "with the calmness of a superior mind;" no doubt, to him the juggleries of his formulæ seemed really to embrace all possible knowledge; no doubt, to him even his great master was a dreamer and a theorist. For his policy is one of conciliation; it is worldly wisdom and the moral μεσότης carried into the sphere of pure thought: it is practically right if men wish only for goodwill in society, it is absolutely wrong if they prefer to seek for truth. But perhaps the most singular feature of the whole is the *traditional* nature of Oxford Aristotelianism. The Aristotle to whom men have looked has been the Aristotle of the Arabians and the schoolmen—the author *plus* his interpreters,—not so much his actual words, as the body of systems wrought out of them which has been handed down from one generation to another. Taken quite out of relation to his times—the influence even of Plato upon him being hardly and occasionally conceded—he has become the mere synthesis of the moral wisdom of whole cycles. He has been read by the light of every age but his own, and every succeeding century has added its mite to the traditional interpretation of him. The Alexandrians found Neo-Platonism, the Arabians found Mahometanism, the schoolmen found scholasticism, the men of modern times find Butler, and Mackintosh, and orthodoxy generally; and that which is taught is in truth the accretion of all of these round a few remarks on volition and a rude analysis of virtue.

But if there be any truth in this theory that Aristotle and his disciples are the reflex of one another, this is not only a fact, but a law. Every system of philosophy, like every other system whatever, admits of more than one interpretation. It changes with the point of view and the mental bias of the beholder. And thus the changes in the interpretation of Aristotle are the key to the inner workings of the Oxford mind: the stages of the one

are the stages of the other. We have given a sketch of what until lately was the dominant view of Aristotle, inferring from thence, as an effect no less than a cause, the intellectual state of Oxford. We now proceed to the estimation of the great change which is passing over it, and which finds its full reflex in the new interpretation.

It is seldom that we can do so with the certainty which Sir Alexander Grant's book renders possible. Oxford is very slow in embodying its thoughts in print: the junior men are too timid, the seniors too dignified. Especially on this great subject of Oxford study. There is so singular a scrupulousness among Aristotelians as to perfection of style, that neither the one party nor the other venture to risk their reputation by an immature work. And there is a kind of *esprit de corps* among tutors—a kind of reverence for Aristotelian doctrine as for a mystery—which makes men reluctant to divulge to the outer world the arcana of his philosophy. There is a sort of tacit acknowledgment of the traditional nature of the teaching, and consequently there is the usual indisposition to transfer to encyclic treatises that which for ages has been esoteric. But the ice is at last fairly broken; and we have in Sir Alexander Grant's "Essays" a thorough expression of the new school of Oxfordism, written by one of great authority in the University, a member of a distinguished coterie, and lately one of the public examiners.

In a merely literary point of view, this book is at least a remarkable one. It is obviously the result of deep thought and much reading. It is one of those books which are so rare in modern literature, in which the treasure lies mostly below the surface. It is an utterly unrhetorical book. There is no fine writing. There is a studied absence of display. The most striking thoughts are put forth unobtrusively, without any "setting:" the most beautiful passages seem almost purposely broken up to avoid even the appearance of rhetoric. It is simple and scholarlike: there is no art apparent in its composition. And thus, in form as well as in matter, it is the thorough reflex at once of Aristotle and of Oxford. None but an Oxford man could have written it: none but an Oxford man can thoroughly appreciate it. Its fault lies in its very simplicity. It is hard sometimes to find out the drift of a passage: we are tantalised with premises minus the conclusion, or with inferences which are only half drawn. Its style is rather like that of an Oxford lecturer's note-book than that of a regular essay: it has an antithetical sense sometimes, which is quite unintelligible out of Oxford.

But the book, even apart from its connection with Oxford, deserves more than this general kind of criticism: it is well worth

all the examination in detail which our limits can give it, and on both grounds we at once proceed to this. And this examination will be useless unless it is complete; and before it is complete, it must search to the innermost corners of the Aristotelian labyrinth. For the traditional Aristotelianism which has been so long prevalent in Oxford, is still prevalent in the world. The name of Aristotle is one of those which is on every one's lips, but of which hardly anything is really known. And whether it be worth while or no to establish a true view of him *pro bono publico*, it is at least necessary for the appreciation of the subject before us. We must find out what Aristotle really was before we can venture to criticise Sir Alexander Grant's conception of him.

Every true study of Aristotle must begin with that of his historical causes: he cannot possibly be appreciated until he is viewed in relation to his age. More than any other Greek philosopher, he requires to be read in an antithetical and relative sense; and yet with him more than with any other have these elements and antecedents been neglected. The father of the historical method has himself suffered most from the non-application of it. And in this historical method is implied the study not only of the philosophers from whom he borrowed, but of the whole life of his age. We must see how far the political atmosphere in which he lived was reflected in him. We must try to discover the currents and under-currents of thought which came in upon him; the lights which guided him, and the false lights which led him astray; the controversies which were waging and those which were rising; the points on which great questions were supposed to hang; the minor topics which nearness of view prevented him from seeing in their true relation; the social phenomena which wrought their impress upon his character; the authorities who were reverenced, and the growth or declension of their influence. We must make an analysis, in short, of the whole intellectual and moral atmosphere which Aristotle breathed, before we can ascertain the true nature of the life which is in him.

And, first of all, we must bear in mind the state of politics: we must remember the precipitous descent which Athens and Greece had made in political greatness within the half-century after the death of Pericles. For nothing affects the literature of a country so much as its position in the political cycle. Freedom and noble-heartedness in politics are the reflex of the life of the people; and this, too, is the birth-place of literature. So that political and literary greatness are co-existent effects of the same cause; or, rather, they play into each other as reciprocal causes and effects. And in this fourth century B.C., there was a mar-

vellous political retrogression. In those few years after Athens fell, there seemed to come upon the whole Hellenic world a vail of thick darkness. There were no more great statesmen, and, correspondingly, there were no more great writers. Intrigue and selfishness and insincerity were the law of national life: mediocrity and sentimentalism and artificialness were the universal tendency of literature. It was a political phase of the law of reaction: it was the same kind of torpor which seizes individuals after intense and absorbing periods of activity: the great questions had been settled—the great struggle was over; there remained but little to work for, and little to think of, except the bare outside of existence. The politics of Greece were no longer like a sea-swell, with the morning freshness brightening it, and the gusty winds sweeping over it, and the white foam-crests alternating in everlasting rise and fall: they were like one of the great Atlantic algæ-fields, with its inextricable entanglements of complicated foliage, wreathed one into the other as it were a matted network of serpents, until the tide beneath it seems to be dying for languishment, and the sultry miasma which arises from it deadens even the faint life of the calms around it.

Let us look, in the first place, at the state of the drama; for it will not be forgotten that no nation has ever given us so clear a record of the variations of its moral condition as the Athenians in their drama. The comedy was the very mirror of their life: it grew with their growth, and fell with their fall; and with that fall the life of Aristotle was contemporaneous. Between the plays which Socrates saw and those which Aristotle saw, there is a difference, not of months and years, but of a whole cycle. The glory seems quite departed—the spell seems quite broken. Aristophanes lived long enough to see what was growing up around him, for his three sons were the types of it, and his own latest comedies give evidence of it; and with him died the last obstacle to a complete decadence. It is undoubtedly true that the elements of the change were existing even in the best period of Athens:[1] facts can be adduced to prove the degeneracy of the times of Pericles, which are almost as strong as those of any subsequent epoch. But we must regard each period as a whole: we must compare them not so much in their parallelism of corruption, as in the existence or non-existence of better elements. The fact that Sophocles was

[1] Euripides, for example, was a complete expression of sophistical morality. Serenus (ap. Orelli: Opusc. Græc. vet. sent. et mor. ii. 192) relates that Euripides once published a line—

τί δ' αἰσχρὸν ἄν μὴ τοῖσι χρωμένοις δοκῇ;

And that Plato, meeting him afterwards, answered—

αἰσχρὸν τό γ' αἰσχρον κἂν δοκῇ, κἂν μὴ δοκῇ.

living and appreciated, must outweigh any comparison between Agathon and Anaxandrides.

In tragedy the decline had been going on for more than half a century: the rhetorical element was gradually permeating the whole fabric of literature. It can be traced, as Mr Grote well observes (vol. viii., p. 442), with great distinctness through Sophocles and Euripides; and in the youth of Aristotle the transition to sentimentalism and bombast was complete. The innovations of Agathon had done their work. The two pupils of Isocrates—Astydamas, the nephew of Æschylus, and Aphareus, the son of Hippias—were the most popular writers; and this fact is by itself enough to show what Athens had become.

In comedy there is a still wider basis for induction; for this had taken the place of tragedy as the leading fashionable amusement, and therefore as the reflex of Athenian life. The "middle comedy" was at its height during Aristotle's first residence at Athens, and its passage into the "new comedy" marks the further bent of popular taste during his later years. The consciousness of weakness is shown in parody; and the progress of artificial "composition," in laborious remarks on the difficulty of finding "subjects." From Antiphanes, with his sempstresses and bath-women, and Anaxandrides, with his Nereids and love intrigues, the path of the Athenian drama winds downwards through Eubulus, Amphis, Timocles, and Alexis—all of them of considerable note in their time, and the latter especially famous through his Roman translators—until at last we come to the Epicureanism of Menander, and the φλυακογραφία of Sopater.[1] If we turn to the lyrical element of Greek poetry, all that we are trying to show receives additional corroboration. Philoxenus of Cythera, the pupil of Melanippides, had carried the last relic of his master's glory with him into his grave. His survivor, Timotheus of Miletus, who did not die until B.C. 357, left a strong impress upon Greek poetry and music, which

[1] Their spirit may be fairly estimated by their relation to Plato; and we give a few of their references to him, because they tend to show the kind of impression which the Platonic theories had made upon the age, and herein to confirm the view which we have taken of Aristotle as summing up in himself floating popular notions. For example, Amphis says, "I am as much in the dark about the good which you will receive hereby as about the τἀγαθὸν of Plato." And Alexis repeatedly refers to him: for instance, alluding probably to dialectic, "I have been going up and down like Plato, and found nothing philosophical, but only tired my legs;" and again, when some one speaks of his immortal part going up into the sky at death, some one asks, "Isn't this Plato's lecture-room?" Ophelio talks of "one of Plato's stupid books" (βίβλιον ἐμβροντητόν): and Epicrates has a long humorous passage describing a crowd of Plato's disciples in the academy coming to the solemn conclusion, after a long interval of silent and intense thought, that a cabbage is round, but unable to settle the other part of the definition, whether it was an herb or a shrub; whereupon Plato very calmly tells them to begin again.

thenceforth, so far as it existed at all, was a mere synthesis of intricate and artificial expressions, with no life beneath to make it beautiful.

In the orators, the indications of the same change assume even greater prominence: whether we look at the character of the speeches themselves, or at the glimpses of Athenian life which they contain, the decline is only too apparent. There is no longer, as in Thucydides, a fulness of meaning which bursts asunder the fetters of ordinary sentences, and converts their fragments into grand Herculean torsos: precision of syntax is the all in all, and the sentences stand, as in Isocrates, like an unending monotony of triglyphs, painful in their very faultlessness. And beneath them peeps the darkness of Athenian society, which grew with the fast growth of time in blankness of unreality. It was a change from substance to shadow, from matter to form, from being to seeming. It was an age of sentiment and verbiage, of talking rather than working, of money-making rather than courage. There was a looking merely at the outside of things, a love of display for the bare sake of display, a concentration of thought upon the trivialities of life, a growing preponderance of the minor social phenomena, a subsiding of the grand old Athenian spirit into mere fine-gentlemanliness.

And of all this Aristotle bears the impress; so that the knowledge of this is a necessary prerequisite to the understanding of him. He was a thorough man of the world, thoroughly in harmony with his age. He was respected in the highest circles—he mingled with the best society. To the outward view he was an eminent *savant* of considerable political influence, presiding over a collegiate establishment which was the fruit of his own reputation—a sort of cross, in fact, between Dr Whewell and Jeremy Bentham, whom every one knew as a clever man of science, and whom some suspected of dabbling in politics. And if we take the inner phase of him—especially in relation to the ethical portion of his philosophy—we see in him one who was neither Platonist nor Sophist, but both; who was thoroughly versed in the controversies of his day, and, with a sort of placid sense of superiority, tried universal conciliation; who had the same indifferent goodwill to everybody, the same calm effort to smooth down other people's disputes, which characterises the dilettante philosopher of modern times. His age wrought upon him in two ways especially: it calmed down the vehement independence in the assertion of thought which we find in earlier thinkers: it made his system one of compromise; or rather, it effected a union between eclecticism and dogmatism which ruined him as an original thinker. And, on the other

hand, the very artificialness of his times inclined him to the study of the method and expression of thought in which his chief value lies. It gave him precision of thought by turning him to the outward shape and form of thought. And at the same time it gave him a superficial way of looking at things, which spoils some of the most important parts of his philosophy. It made him care more for symmetry than for depth, for logical coherence than for obvious truth. And again, as a politician and a courtier, he was led into that peculiar phase of worldly wisdom—that shrewd eye for the political bearings of things—which is considered to be the very essence of clever statesmanship. In short, all this turned him from the inner to the outward aspect of things: it made him argue for right because of its political utility, rather than its moral necessity.

It is true that, for the most part, this was the age of Plato as well as the age of Aristotle; but Plato had what Aristotle had not—the memory of better days. He had known Athens in its greatness: he had talked with the friends of Pericles: he had seen and heard Alcibiades. Herodotus was still alive in his boyhood: he had grown to manhood before Sophocles died: he may have conversed with Thucydides. The setting out of the great Sicilian armada was doubtless among the bright recollections of his youth: the vigorous patriotism which succeeded its failure had given him the last glimpse which was possible in Greece of the spirit which had fought at Marathon. And the fall of his country, with all that entailed, was an ever-present woe to him. It gave a sad aspiration to his whole life: it took him from the arena of the politics of his time, to work out for the world a dream and a prophecy of Christianity: it made him lift up his eyes from the decaying ruins of the Hellenic world to something like the city of God, and incited him to rear the fabric of his great Commonwealth, where there is no variation nor change; "for in heaven at least," as he says, "its pattern is laid up for him who wishes to see it, and seeing, himself to inhabit it." But besides this, Plato had known Socrates; and the memory of his youth became the everlasting companion of his age. To him the grand old man of Athens lived for ever. No evil could touch him, no sophistry could harm him; while the thought of that true "saint and martyr" floated continually about his soul, and kept up an eternal harmony between truth and goodness and beauty.

It was not so with Aristotle: like a ship on a restless sea, he floated, it may be, in the forefront, but at least on the current of popular belief. He ends, as he begins, with *πᾶσι δοκεῖ* or *τισὶ δοκεῖ*.

But we pass from the social and moral atmosphere in which

Aristotle moved, to the precise historical causes of which his ethical philosophy was the result. And here we can fall partly into the track of the Essays before us. Sir Alexander Grant has admirably sketched the history of Grecian ethics,[1] although with some remarkable omissions, and, above all, a non-recognition of facts as causes, which seems strange in a follower of Hegel. And in searching for these philosophical elements of Aristotle's system, we must guard against the common error—which Sir Alexander Grant seems only partially to have escaped—of confounding the system with the spirit of a philosophy. We must try to grasp the "idea"—the informing thought, which took up for its outward expression a cluster of theories and metaphors, partly original, partly inherited, in no way essential to the idea itself. And again, we must avoid the other error, of connecting great discoveries exclusively with individual great names: we may take these as the highest developments of phases of thought, but not as their entire concentrations. For instance, the νοῦς of Anaxagoras was only the complete expression of the tendencies of the thought of his time—the progressive result of Eleaticism, which seems to have been enunciated already in as many words by Hermotimus. In other words, we must endeavour to ascertain, not individual systems, but the great currents of thought of which they are at once the elements and the effects: and, in doing so, we must not only gather the idea rather than the expression of a philosophy, but also resolve that idea further into its general and particular elements.

For the influence which one philosopher has upon another consists in the silent working of mind upon mind, rather than in the outward adoption of theories. And thus, in order to see Aristotle as a result of historical causes, we must look for these causes, not in the surface and outward shape of previous systems, but in the calm deeps of thought which were flowing on in silent under-current, beneath the commotion of political change, and the controversies of rival schools. And, on the other hand,

[1] With regard to the rationale of the first part of Plato's *Republic*, which is given as a corroboration of the division of ethical eras, while we gladly accept any recognition whatever of the fact, that the Platonic dialogues have an artistic form—that they are not "imaginary conversations," but dramas, we should yet like to have seen a rather fuller enunciation of it. The *Republic* is built upon the common consciousness of mankind, that happiness is incompatible with injustice, at least on the verge of death. It has strictly an ethical purpose—to show what it is which will really give a man "peace at the last." All admit this to be justice, or, as we should call it, "virtue." The question is, therefore, "What is virtue?" And Plato asks, first, Is it what the men of the old school thought it to be? This is shaped into a warm discussion on a definition of it by Simonides. Then the question is, Is it what the ultra-Sophists think it to be? This is shaped into a sharp dispute with Thrasymachus. Then follows a statement of the doubts which men of sense were beginning to feel about it; and finally, the true theory of it is put into the mouth of Socrates.

we must remember the other portion of the elements of Aristotle: —there was more than an unconscious relation to the past: there was eclecticism as well as relativity. And thus we must subject previous philosophers to a double process of elimination: the one, to discover the spirit which they felt; and the other, to evolve the notions which they consciously borrowed.

The most important point of view is that which measures these schools by their growth in subjectivity, by their elimination of the "ideas of pure reason"—God, and freedom, and immortality. The first great characteristic of Greek thought had been a tendency to the objective—circumspection rather than introspection—a looking upon the universal cosmos rather than upon the individual man. It was a tendency, in other words, to physics, in the widest Grecian meaning of the word, rather than to pure metaphysics or moral philosophy. The sense of the mystery of things which had made the Greeks almost pantheistic, had made them also natural philosophers. But through this philosophy of the objective, a tendency to subjectivity was developing itself with a strong and steady growth, in the form chiefly of Pythagorism and Eleaticism. It was the most important reaction which philosophy has seen; and an investigation of its origin would open up psychological questions of the utmost value. But we must take the current lower down, as we find it in the middle of the fifth century. It was then branching out into three great streams, which can be traced in distinct channels at least as far as the time of Aristotle. The great historical landmarks which point to them, are Anaxagoras, Empedocles, and Democritus.

Anaxagoras is the earliest, and in many points the most interesting of these; for with him the philosophy of *mind* properly begins. But with him mind and matter are as yet in synthesis; and the induction proceeds from the latter to the former, without any apparent recognition of individual anatomy. From him was derived, in all likelihood, Aristotle's grand conception both of humanity and of Deity. For, independently of the marked respect with which Anaxagoras is quoted, his theories seem to have fought their way to the forefront of the popular philosophy of the fourth century. Though himself banished from Athens, the friendship of Pericles and the versified Anaxagorism of Euripides show the hold which his thoughts were taking. Archelaus, his philosophical representative during his exile, adds another link to the chain: with him sophistry fairly commenced; οὐ φύσει ἀλλὰ νόμῳ is the summary which remains to us of his ethics, and herein lies the essence of all that Protagoras preached.

In Empedocles we find the reaction against the old Ionian

schools shaping itself into a spirit of superficial dogmatism. Chiefly famous in his times as a politician and physician, distinguished in literature as the last of the great epic poets of Greece, his importance in the history of philosophy consists in his having been the immediate cause and type of sophistry. From henceforth there is a new element in Greek philosophy, which passed under the name of *Rhetoric*, and which was, in fact, the dereliction of all true thought whatever. Co-ordinate with it was another element, which was introduced by Zeno of Elea, and which, under the name of *Dialectic*, gave all that was wanting to ruin honest thinking. These two elements—the art of talking and the art of disputing—the one affecting chiefly the matter of thought, and the other its form—must be regarded entirely apart from any connection with Plato: they came upon Aristotle in an entirely distinct channel: they constituted, in fact, the great mass of the non-Platonic ingredients of Aristotle's moral philosophy.

And this brings us to that remarkable phase of philosophy which, from the time of Plato, has passed under the name of Sophistry. Its historical efficient causes were rhetoric and dialectic: its historical material causes were the state of Greek politics, and the existing phenomena of the Greek character. The controversy which was started by Mr Grote as to its nature, has led Sir Alexander Grant to a very valuable discussion, in the results of which we almost entirely coincide. The question has hitherto been connected with much extraneous matter; and, in speaking of it, we speak of the admitted subject-matter of the sophistical teaching, not of the moral character of the teachers. And, again, we use the name "Sophist," not as denoting a worthless and wilful quibbler, but simply with reference to these admitted doctrines. It has been a favourite mode of argument in all ages, to prove or confute a given doctrine by lauding or vilifying the moral character of those who have promulgated it.

We regret that our limits entirely prevent us from following Sir Alexander Grant into the details of the controversy. The subject has wider bearings than almost any other in the history of philosophy; for the case against the Sophists of Greece is also one against those of our own times. But the immediate point which concerns us now, is their influence upon Aristotle: and this brings us at once to the inner spirit of the whole movement. Gathering together the chief results of both sides of the argument, it is clear, that whether they were effects or causes, beneath or above the standard of their age, they were at least a profession, with common elements of teaching, and a common spirit of dogmatism. It is enough to know that they were *professional* thinkers —that to them philosophy was a body of dogmatic truth, which they made it the business of their lives to teach. For from

this it followed, that they were *shallow* thinkers—that to them philosophy was no deep and solemn mystery for the few, but a collection of trite sayings and useful maxims which might be grasped by the commonest understanding. They were in the first transition from ignorance; and to them this was all knowledge. They gathered up the shreds of popular beliefs into a system; and to them this was the universal philosophy of mankind. They were infant thinkers when they should have been growing into men; they were dogmatists when they should have been learners. The outer life of the outer world was all in all to them: information took the place of education, talking was the substitute for thinking. Neither better nor worse than their age, their object was to make their pupils men of the age; and, consequently, they endeavoured not to form the characters, but to impart that versatile cleverness and studied display which were the elements of Greek popularity. To them the world, as we Christians call it, was not evil, but good: its dark side was ignored, its needs were unknown. "*Vox populi, vox Dei;* or, as they phrased it, πάντων μέτρον ὁ ἄνθρωπος: meaning in philosophy common opinion, and in morals common experience. And thus they preached practical morality, because the universal voice of mankind told them that justice is at least more profitable in the end.

And although in Aristotle's days they had so degenerated even from the type of Protagoras and Prodicus that he strongly opposes them as a class, yet the current of thought upon which they floated influenced the whole of his ethics. The most prominent proof of this is his terminology, which is at once the strength and weakness of his system: its strength, because it first gave ethics a scientific completeness; its weakness, because it induced that excessive devotion to his own formulæ—that attempt to grasp all moral philosophy within one or two magic word circles, which makes his system meagre in its very definiteness. And then it occasioned that subordination of ethics to politics—or rather that political aspect of ethics, which is at once so characteristic of a Greek and so repulsive to a Christian. And it doubtless is the cause of those continual lapses into utilitarianism, that continual ignoring of the higher motives, which distinguishes the popular morals of all ages. To this, again, we owe his casuistry,—the discussion of theoretical dilemmas, which was the chief, and subsequently the only occupation of the sophistical schools. There is, undoubtedly, a higher element, to which we shall presently turn: but there is hardly a single page which does not bear the impress of the popular shallowness and practical "worldliness" which had become the cause, as they had been the symptom, of the low state of Greek society.

Another ingredient in the thought of Aristotle's age must be noticed before we pass to Platonism: and there is the more necessity for alluding to it, because of its singular omission by Sir Alexander Grant. We refer to the strong tendency to eudæmonism which was developing itself, apart from either Socratic or Sophistic influences, in such men as Democritus and Archytas, who may be taken as the types of it. The few relics which are left to us of these philosophers, only serve to heighten the probability of their great influence upon Aristotle.

In Democritus especially we can clearly trace the existence of a current of thought which is at least parallel with many parts of Aristotle's theory. Although now but little known, Democritus was one of the truest, as well as one of the most influential, of the whole body of Greek philosophers. His lifetime extended over upwards of a century, closing during Aristotle's stay with Plato in Athens: and, perhaps, the most singular fact of it was his utter independence of all contemporary thinkers. He was completely un-Platonic,—the complement of that Greek spirit, the other side of which may be represented by Socraticism and Sophistry. His school long survived him; and its historical traces are considerable. The chief of his disciples was Diagoras of Melos—famous at Athens, in the days of Socrates, as the determined opponent of the popular mythology: and the names of Metrodorus, Nausiphanes, and Anaxarchus, in the fourth century, show the influence which he had in preparing Greek thought, on the one hand, for scepticism, and on the other for Epicurism. The latter tendency presents us with all the main features of the Aristotelian eudæmonism. The end of life was, in the words of Democritus, εὐθυμία, ἁρμονία, συμμετρία, ἀταραξία, εὐεστὼ: it was peace, and contentment, and calm: it was freedom from care and weariness, rather than the presence of bodily delight: it was self-satisfaction and self-contemplation: it was the full sense of life, and the unruffled flow of all the faculties. This is exactly one phase of the εὐδαιμονία of Aristotle. Again, it was a harmony; and in this lies the other part of Aristotle's theory—that the virtue of every faculty is the relative development of it, and that happiness is the synthesis of these. The "Golding Sayings" of Democritus, which Mullach, his best editor, has little hesitation in pronouncing genuine, are in perfect accordance with this: in them true pleasure is that which has no shame—happiness is placed in the mind above all bodily delight—fate and chance are imaginary phantoms, moral wisdom may be certain of its result. And, again, contentment is made a necessary ingredient of happiness—the transgression of τὸ μετρίον involves the certain loss of pleasure: obedience to the law, and deference to the wiser, is at least more becoming:

and delight may flow, not only from doing what is right, but from seeing it done. All these are points which the reader of the Nicomachean Ethics will readily remember in their Aristotelian form: and we cannot but infer a closer relation than that of accidental coincidence.

Such were the most prominent of the great floating masses of thought among which Aristotle moved when he left the school of Plato. They had partly caused the Socratic philosophy, they were partly the antithesis of it. They were all transitional and reactionary. They represent, for the most part, the dogmatism of youth, as Aristotle represents the dogmatism of manhood. They may be summed up as containing several distinct tendencies. The first may be called a tendency to objective philosophy, which appears in the first stage of its disentanglement from the relics of the old world, from the blind wonderment at nature out of which all philosophy had sprung. The second was a tendency to subjective philosophy—a nascent idealism forming the first rude fabric which was reared from the chaos of mental intuitions, —a shapeless structure of unhewn stones which subsequent philosophy has polished and carved and rearranged, but not greatly increased. And then there was the first birth of ethics—the first dawn of belief in the separability of man from nature, which was working itself out into a theory of happiness and a scientific proof of the utility of virtue. To this we must add a tendency to a philosophy of language—to the formation of definite scientific terms, which was the necessary result of violent controversy.

And now we pass to the other half of the elements of Aristotle; for they may be fairly divided into the non-Socratic and the Socratic, the latter of which may be classed again as the Platonic and the non-Platonic.

The portrait of Socrates himself has been sketched by two hands: both were his pupils, and both drew from the life; but the portraits which they severally drew differ in almost every feature. The truth, of course, lies between them; but we are sorry to observe a strong tendency even in Sir Alexander Grant to consider that of Xenophon as the more historically correct. No doubt, the Platonic Socrates is, to some extent, a mere "*dramatis persona*," by whom his own best thoughts are spoken; but, on the other hand, it must be remembered that Xenophon only saw his master with the eye of a man of the world—a *litterateur* and dilletante philosopher, to whom the deep parts of his philosophy were almost meaningless. The points which struck him were on the surface: his quaint sayings and noble deeds, day after day, were the chief things that arrested his attention; and there was enough in these to fill up all the portrait which he has

drawn, without any appreciation of the inner and truer life—the higher and holier talk, which perhaps none but Plato could understand. To take a somewhat analogous case: it is not necessary to suppose that St John's account of our Saviour is in any sense idealised because St Luke dwells more on His outer life—His parables, and miracles, and journeyings.

The influence of Socrates upon ethics amounted to a complete revolution, and Aristotle bears the full result of it. But its influence upon him was only mediate; and we must therefore look away from Socrates himself to gather a notion of its nature. In the words of the second essay—the arrangement of which we cannot now do better than follow—

"The many-sided life of Socrates gave an impulse, as is well known, to a variety of schools of philosophy. It is usual to divide these into the imperfect and the perfect Socraticists: the Megarians, who represented only the dialectic element in Socrates, and the Cynics and Cyrenaics, who represented each a different phase of his ethical tradition, being considered as the imperfect Socraticists; and Plato being esteemed the full representative and natural development of all sides of his master's thought. Plato is so near to Aristotle, and is such a world in himself, that we may well leave his ethical system in its relation to Aristotle for special consideration. An account of the Megarian school belongs rather to the history of Metaphysics; the Cynics and Cyrenaics then alone remain to be treated of in the present part of our sketch of the pre-Aristotelian morals."—(*Essay* ii., p. 127.)

The Cynics were a reproduction of the bare outside of Socrates—the stern roughness which laughed at luxury, the carelessness of all things but the highest human good. They saw the morbidness of a corrupted age, and the misery of the universal lust for enjoyment: they looked to the shallowness of popular pretensions, and the hollowness of outward appearances: they felt the mockery of social life, and the insincerity of worldly professions; and when they learned from Socrates the reality of virtuous peace and the true nobleness of independent will, they devoted their lives to following him. "If we abstract all the Platonic picture of the urbanity, the happy humour, and at the same time the sublime thought of Socrates, and think only of the barefooted old man, indefatigably disputing in the open streets, and setting himself against society, we recognise in him the first of the Cynics."—(*Essays*, p. 128.) In relation to Aristotle they are important, as indicating the presence of this element in the Socratic philosophy, and also of its external condition in Greek society. They show that at least there was not an utter insensibility to the stern virtue of ancient Athens—that the spirit of Marathon lingered still here and there, even under the rude cloak of a Diogenes, and the obstinate antagonism of an

Antisthenes. Their fault lay in their being an exaggeration, which almost amounted to a caricature, of a right principle: their value lay in the strong light in which they placed the law of duty and the power of will.

But Socrates had tended to give shape to a far more marked feature of his age and country. Athens, in its period of decline, developed rapidly the latent features of its period of greatness. It became, little by little, a mere city of southern Europe. Political indifference was at once the cause and the result of political failure. Men began to find the beginning and end of life in the outward enjoyment of life. They were not so much sensual as selfish; for every one concentrated his thought on his own individual pleasure. The good which Socrates wrought upon this state of feeling consisted in the union of the idea of pleasure to that of virtue; so that through the whole of the fourth century the worst results of the Hedonistic principles hardly once appear. Phædrus, with his delicate diet and effeminate dress, is the type of the rising generation in the old age of Socrates; and Plato draws curious pictures, in the "Republic," of the valetudinarianism, and careful extraction of the last dregs of pleasure, which was growing up around him. But it is almost an anachronism to connect this with the Cyrenaics: Aristippus had but few disciples: he confided most of his system to his daughter Arètè, who, in her turn, taught Aristippus the younger; and it was only in the time of the latter that the Cyrenaics could be called a school. An incidental proof of this lies in the fact, that Aristotle criticises the Hedonistic doctrines, not as taught by any professed sect, but as a distinguished literary man of the time—Eudoxus the astronomer—was known to hold them. The tendency of the Athenian mind to which we have alluded, was doubtless the cause of considerable speculation. That which had become a fact in society, was resolved into a theory in philosophy. The whole bent of the controversies of the fourth century was in this direction. And especially those who had known Socrates were brought to justify pleasure-seeking by his example. They saw his happy contentment and everlasting humour; and they felt, too, that this was the realisation of perfect virtue. And thus men like Aristippus, whose own nature was prone to the brighter side of things, easily drew the inference that this was the highest state of human life—the only thing, in fact, worth living for. With him on philosophical grounds, as with others from sensuous impulse, life was to be used and loved—the pleasure of life was to be sought and found.

It would be almost needless to point out how far this tone of feeling influenced the Aristotelian ethics; and we therefore hasten to the only other element that remains, which Sir Alex-

ander Grant has treated with remarkable power in one of the most interesting of his essays. This element of Platonism occupies so large a portion of Aristotle's system, that we fully endorse his words—that "to explain the relation of any one of Aristotle's treatises to Plato, is almost a sufficient account of all that it contains."

Aristotle, as we have seen, moves wholly in the sphere of popular conceptions, but he never once allows us to forget that he was a student in the school of Plato. He is the type of a large class: the thoughts of Plato had worked themselves into his whole being: he had been educated by them until they seemed parts of his own mind: they were intuitional ideas whose origin he had forgotten, and which rose up continually within him with the aspect of new flashes of truth. But when he came to look on the outside form of Plato's thoughts, on the theories in which they had shaped themselves, and the language which they had taken for their covering, he utterly failed to grasp their meaning, or to see the life beneath them. As a philosophical critic, he has few inferiors and many equals. For the sophistical rhetoric had taught him to deal only with language, and not with the thought beneath the language. And thus he quibbles and cavils at terms when the terms were merely accidental; he disproves theories by the contradictions of their logical sequences, when those sequences flow altogether from the unessential part of them; and he states the philosophy of others in his own language —language which was utterly inadequate for the expression thereof, and which would have been entirely repudiated by those whom he attempted to criticise. And thus, on this ground of popular beliefs and sophistical terminology, he stands, not as the disciple, but as the antagonist of Plato. He looks at him, as he looked at all others, with the calm complacency of mingled pity and respect.

The Ethics contain one of the most characteristic of these criticisms, and the essay before us enters into it with admirable fulness:—

"Plato, who had expressed himself utterly dissatisfied with the empirical and prudential morality of his countrymen, and who wished to raise morality and politics (which with him was but morality on an extended scale) into something wise, philosophical, and absolute, made certain requisitions for this. He demanded that a full philosophic consciousness should govern everything. He required that a knowledge of the good-in-itself should be present to the mind. He acknowledges, it is true, that the philosopher, after dealing with sublime speculations, may seem dazzled and confused, when he is suddenly confronted with the petty details of life, the quibbles of law-courts, etc. But, on the other hand, he seems to have considered, not

only that philosophy was indispensable to morality, but also that the mind, by contemplating the idea of good, would become conformed to it. This idea, then, was not merely an object for the abstract reason; it was an object for the imagination also, and an attraction for the highest kind of desires. It was not only an idea, but also an ideal." —(*Essay* iii., pp. 153, 154.)

But what was Plato's *idea?* Taking it entirely out of the physical world—in which it was the first way of expressing the "Law of Nature" of the modern inductive sciences—it is the truth which manifests itself in divers forms in divers relations. Apparent differences of manifestation conceal sometimes a most certain unity; and this is as true of actions as of thoughts. For example, just actions are as diverse in outward seeming as actions can be, but the presence of some one quality in each, or in the doer of each, makes them just: this quality—or whatever else it may be termed—Plato called the ἰδέα, or formal cause, of justice. But justice is in itself only what Bacon would term a "middle axiom:" it is one of the co-ordinate members of a class which are outwardly still more diverse than the former, but beneath which lies a still higher unity. The ἰδέαι of justice, and courage, and truth, for example, are all the differentiations of the ἰδέα of good, which is the highest possible abstraction. The knowledge of this idea of good, therefore, Plato said (and with him true knowledge implied performance), will lead a man to know what is right to be done in every conceivable circumstance of life: the object of ethical education is, therefore, the acquisition of it. This may be more intelligible if we translate the theory into other language: a certain number of actions—the condemnation of a thief, the restoration of a deposit, the avenging of an injury—are characterised by the common mark of "justice," *i. e.*, a just man, under certain conditions, would invariably perform them; another cluster of actions have the common mark of "truth;" another, of "benevolence:" justice, truth, benevolence, and an indeterminate number of other qualities, are all manifestations of one principle, quality, law, or whatever else it may be termed, which is summed up in the word "love;" and thus a knowledge of the true nature of "love" is a knowledge of what is right to be done in every relation of life. "Love" is, in short, the Christian expression for the ethical phase of Plato's τἀγαθόν. The unessential part of Plato's theory, is the deduction which his peculiarly Greek mind caused him to draw from it. It is comprehended in the word ἰδέα: for he inferred that the conception which existed in his mind as "the Good," must have an external existence in the actions which were its manifestation—that what was real in his own self must be real also in the universal self of the great Cosmos, which, perhaps, to him was God.

And now we turn to Aristotle's criticism of this: Sir Alexander Grant states his arguments as follows:—

"After an expression of good feeling and respect towards the Platonic school, he proceeds directly to bring a series of arguments against the tenability of their doctrine,—and these arguments are briefly as follows:—(1.) The Platonists themselves allowed that, where there is an essential succession (*τὸ πρότερον καὶ τὸ ὕστερον*) between any two conceptions, these could not be brought under a common idea. But this succession occurs in different kinds of good. Good in relation—*i. e.*, the useful,—is essentially better than good in substance, and therefore cannot fall under the same idea. (2.) If all good were one, it ought to be predicated under only one category, whereas it can be predicated under all. (3.) If it were one, it would be treated of by only one science. (4.) The idea is only a repetition of phenomena, for with these it is really identical. (5.) Even the most essential and undoubted goods seem incapable of being reduced to one idea."—(*Essay* iii., p. 156.)

With regard to the first argument, there are several ways of meeting it, by the denial of either the major or the minor of the syllogism involved in it. Sir Alexander Grant does not appear to us to have given the most satisfactory refutation: in our own judgment, the major as well as the minor premiss should be disputed. It must be remembered that nearly all our knowledge of the Platonic theory of numbers comes from Aristotle himself. We at least, therefore, do not know it in its Platonic form; and the misstatements with regard to the ideas lead us to infer a similar perversion with regard to numbers. The true meaning of Plato, in saying that there is no idea of things which admit of temporal or local succession, was probably this: The ideas or formal causes of things are so utterly distinct from the accidents under which they manifest themselves, that they are immutable, and therefore eternal; they are out of space and time; they live with God in the world of changelessness; relativity and succession are only parts of their accidental manifestation, and things *quâ* their relativity have no idea. And with regard to the Platonic theory of numbers, it is clear that, to him as to the Pythagoreans, numbers were symbolical: they represented especially mathematical figures, or rather, the term "number" had the invariable connotation of "dimension;" and this not only of extension in space, but of succession in time; so that a theory of numbers was in reality a theory of time and space. This, we may observe in passing, seems to be the meaning of the Pythagorean doctrine, that numbers were the ultimate elements of the world.

The second of these arguments of Aristotle is an equal misapprehension of Plato's theory—a simple perversion of its

meaning. Aristotle had borrowed from Archytas a set of formulæ called "categories." He affirmed that every predicate of a proposition, formally considered, falls under one, and only one, of these categories. If, therefore, the "good" is one thing, *i.e.*, an ἰδέα, it must be predicated under one, and only one, category; for example, under that of substance. But, in reality, the "good" is predicated in every category; therefore it cannot be one thing, but many. It will be observed here, that, in the first place, he postulates the truth of his own formula; and that, in the second place, he assumes that a unity can only be viewed in one aspect—that a thing which he calls "one," cannot be at once substantial and relative. But this plurality and pregnancy of meaning is exactly what Plato implied when he used the term. He affixed to it a sufficiently definite connotation; whereas Aristotle argues upon its popular connotation—a sufficiently clear proof of either wilful perversion or absolute incapacity of comprehension.

But this may seem a digression; and we must not say more even about Plato.

We have thus sketched out the main features of the Aristotelian elements; and when these have been subtracted, one by one, we shall find but a scanty residuum. The two aspects under which Aristotle may be regarded—as a man of the world and a man of letters—show us how naturally he lapsed into the current of popular opinion and popular controversy. As a Greek, he viewed ethics from a political stand-point; as a courtier, his method was one of compromise; as a man of his age, the eudæmonistic tendencies of his age could not fail to impress him. And when, through the long turbulence of the past century, he saw the growth of system after system—each having some portion of truth hidden within it, and carrying in its fore-front the weight of individual authority—he became the father of eclecticism, by publishing a hand-book of moral science, or by delivering a course of lectures on moral philosophy, which has come down to modern times under the name of the Nicomachean Ethics. He very much resembles his friend Xenocrates, who, like Aristotle, had heard Plato without understanding more than the outside of him, and who to Platonism added a like element of sophistry. The result is very similar; and if all other evidence of Aristotle's relation to his times were wanting, it would be enough to produce the fragments of Xenocrates. For instance, Aristotle's εὐδαιμονία, even in the points which seem most peculiarly his own, is evidently borrowed from the same sources as that which Xenocrates defines as κτῆσιν τῆς οἰκείας ἀρετῆς καὶ τῆς ὑπηρετικῆς αὐτῇ δυνάμεως . . . "the seat of which is the soul; its efficient causes, the virtues; its material

causes, right actions, and good habits, dispositions, feelings, and relations, since, without the latter, bodily and external advantages cannot be enjoyed."

And thus it is that Aristotle stands, the synthesis and result of all that had gone before, the mirror in which the opinions and feelings of his age shine forth with a marvellous distinctness. Those who read him are like unto him; and those who are like unto him are many in number—perhaps the majority of the educated men of every age. As long as we confine our attention to the *matter* of his philosophy, we are amazed that so threadbare a patchwork could possibly have entranced, through whole centuries of thought, the whole body of thinking men. But if we turn from that which he borrowed to that which was his own—from his matter, in short, to his *form* and *method*—there is no longer room for surprise. It was his one contribution to thought—the one thing original in him, as it is necessarily in every one who thinks for himself. That is to say, the points of view under which he regarded the subject-matter of philosophy, are the most valuable parts of him. For it is clear that no part of the mental or moral world can be known in its real nature: their facts are like statues which we are forbidden to touch, but which we can look at from every side and from every distance—the value of a description of them depending entirely on the point of view. And so it is with philosophy: object is never entirely objective; and the science of the formal part of philosophy (*i.e.*, logic) is nothing more than an account of the value and use of the points of view which various thinkers have taken. For instance, it is possible to regard inference as a relation of major and minor, *i.e.*, from a syllogistic point of view: one part of the science of form, therefore, will discuss the nature and value of the syllogism. And, again, these points of view are, in relation to the mental sciences, what experiments are to the physical sciences. They are the only tests which are possible out of the domain of natural phenomena, and may rightly be called the experimental method of philosophy. Their number is only limited by the number of thinkers. The individuality of each thinker gives some *differentia*, however slight, to his way of regarding a subject, *i.e.*, to the formal part of his thought. The fault of the Aristotelian schools has consisted, in the first place, in considering Aristotle as a typal man—that is to say, in taking his points of view as the summary of all possible ones; and, in the second place, in considering the body of his philosophy apart from its relation to Aristotle himself—that is to say, in not eliminating the element of form from the synthesis of form and matter. In other words, his methods have been regarded as exhaustive in their operation and absolute in their results, when

they should have been regarded as partial and relative. The most singular, and at the same time the most lamentable, consequence of this, has arisen from the fact, that his points of view are methods of analysis rather than of synthesis, whereas they have been applied to both indiscriminately. The syllogism, for instance, is an analysis of either the major premiss or the conclusion; whereas it has been distorted into a criterion of all inference. The tendency of Aristotle, which we see also in the great majority of Greek thinkers, was rather to make distinctions, to be exact and subtle, than to add to the matter of mental science. This tendency reaches its height in his logic, which may be described as a process of demonstration, as that of Plato is a process of discovery. The difference between dialectic and the syllogism underlies the whole difference between Plato and Aristotle. But, again, these points of view may be conscious or unconscious, explicit or implicit: in the former case, they may be called "*formulæ;*" in the latter, "*a priori* conceptions." Both of these are found in Aristotle. He was the first—omitting the doubtful case of Zeno—to investigate any of his methods, and so to form a science of method. And one of these—that of the syllogism—was so thoroughly worked out in all its bearings, that the greater portion of mankind ever since has been deluded into the belief of its universality. Of the others, some were consciously used without a full research into their value; and others have still to be evolved from his philosophy. The fate of the latter, compared with the former, presents one of the most singular anomalies in the history of thought. The formulæ which Aristotle himself discussed have given rise to a mass of literature, the study of which would of itself be enough to occupy a lifetime. Those which he left for future investigation, or which he unconsciously implied, have lain until now, covered with the dust of ages, utterly forgotten or ignored.

Especially in relation to Aristotle's Ethics, the knowledge at least of some of these formulæ is indispensable; and there is nothing which gives a greater value to Sir Alexander Grant's work than his discussion of them. It constitutes the really great and promising part of the Essays; and if it be true that herein he has profited least by the labours of others, we must congratulate him on the most important addition to Aristotelian literature since the first application of the historical method. Its great defect is its want of comprehensiveness: there is an ignoring, or an unconsciousness, of the connection of the formulæ which we find in the Ethics, with the whole theory which we have just stated. They are apparently viewed in isolation, as we shall have to notice again in the chapter on the physical ideas in the Ethics; but still we are glad enough to accept them as they are.

Those which Sir Alexander Grant has selected for discussion, are the doctrine of the four causes, that of the opposition of δύναμις and ἐνέργεια, that of the "mean," and that of the practical syllogism.

These four forms almost exhaust Aristotle's explicit methods of regarding virtue. Unable, as he himself felt, to describe virtue in its absolute and real essence, he looked at it from various stand-points. Taking the first of these forms, he regarded human life as a means to an end—the means being normal action of the faculties, the end being individual and universal happiness. From the second, he regarded virtue as coming under the law of expression and development—as the realisation of the latent faculties of human nature. From the third point of view, he regarded the various virtues as coming under the law of moderation—all perfect things being neither in excess nor in defect. From the last, he regarded a virtuous action as the result of a right principle correctly applied to a particular instance, and followed up by action; so that the principle might be termed the major, the particular instance the minor, and the action the conclusion of a moral syllogism.

Examining these points more closely, we see from the first that Aristotle looked upon a right action as the realisation of the end of a right motive—γένεσις τελεσθεῖσα: but the true motive cause of every action is the desire for good;—therefore right actions universally are those which produce this good. Regarded in this light, the moral world has a similar constitution to the physical world. An action is like a fact of nature, and, when rightly performed, is like the normal development of a flower. The moral world, if all men realised the end of action, would be like the physical world, if all things came to perfect growth. The result, in the one case, would be universal happiness; in the other, universal harmony. This present life, then, and the theatre of action which it affords, is one in which the right exercise of every faculty, within its proper sphere, is sufficient to produce happiness. "Virtue is its own reward," because the very doing of virtuous acts is in itself the highest pleasure. But the addition which Aristotle made to this spoils the whole theory. A century before his time, happiness had been considered to be wholly objective—the presence or absence of "worldly goods." Socrates and Democritus had preached that it was wholly subjective—the presence or absence of peace of mind. The ethical controversies of Aristotle's time turned chiefly on these points; and his own philosophy of compromise induced him to unite them, by making happiness only possible ἐν βίῳ τελείῳ—"in an adequate, complete sphere of external circumstances."

But in the latter part of the Ethics this whole theory of earthly

happiness seems to be discarded. It is true, Aristotle would have said, only of this present practical life; but beyond it is the higher life—the life of man's higher nature—the life of pure thought. For, starting from the lowest point of the creation, he found that the "pure reason" is that which chiefly individualises man; and this was to him the highest degree of human existence.[1] It must have, therefore, an action of its own; and this action constituted the "contemplative life,"—a life which, even on his own hypothesis, was unattainable on earth, and which, from his own theory of final causes, might have led him to the best proof of immortality.

The second form which is discussed in this essay, is the doctrine of ἐνέργεια, or "actuality."

"'Ενέργεια is not more accurately defined by Aristotle than as the correlative and opposite of δύναμις."—(*Essay* iv., p. 182.) But δύναμις has a double meaning: firstly, it is the possibility of *being* something which does not yet exist; secondly, it is the possibility of *doing* something which is not yet done. 'Ενέργεια is applied to both of these, although with but little constancy of usage. In relation to the former—which may be called its subjective aspect—it is the process of becoming; the complete existence which is the result of it being properly, though not uniformly, designated ἐντελέχεια. In relation to the latter—which may be called its objective aspect—it is the act of doing that of which δύναμις is the condition or the capacity. And thus all things which have any kind of developed or developing existence, may be viewed as ἐνεργείαι. In ethics, the most important use which is made of the formula, is in the definition of happiness as an ἐνέργεια. That is to say, he regarded it as the fulness of the soul's life—the realisation of every faculty. So long as the powers of the mind are passive, they are merely δυνάμεις—capacities which may be used for good or evil: if they are used imperfectly or wrongly, the result is misery; if they are used fully and normally, the result is happiness. "Life itself is the end of life;" and this complete exercise of human faculties, each in its due relation, is objectively considered the end of human nature, and subjectively considered the attainment of human happiness. But Sir Alexander Grant goes further than this, and, with the very necessary proviso that he is rather making a deduction from Aristotle's theory than stating it as it is found, he goes on to show that ἐνέργεια must imply "consciousness." It may be well sometimes to view old theories by the light of later discoveries,

[1] According to the formula which may be gathered from, *e.g.*, Metaph. XI. (XII.), c. 5, ἅπαντα γὰρ ὕλη ἐστί, καὶ τῆς μαλιστ' οὐσίας ἡ τελευταία—and which it would be well to trace out through the numerous phases which it assumes in Aristotle's writings.

to show what a thinker would have thought if this and that key to a mystery had been known to him; but we must carefully separate between explicit and implicit teaching. It would be quite as true to evolve free-will from προαίρεσις, as to evolve consciousness from ἐνέργεια. And in the passage which Sir Alexander Grant himself quotes from *Eth.* ix. 9, § 9, there is a clear severance between the two ideas, which we cannot reconcile with his interpretation.

But this is a part of the subject which we regret that we cannot discuss fully now; nor yet the ensuing section upon the doctrine of the Mean—the "*Aurea Mediocritas*"—which has long been the most striking portion of Aristotle's moral philosophy. In spite of the distinct warning (in *Eth.*, ii. 6, 17), that the consideration of the virtues as mean-states arises only from a particular point of view, the theory has been misinterpreted, alike by his friends and his opponents, as though it were an absolute description. It is a form, and nothing more: it is a way of regarding the subject which is convenient both for classification and preceptive teaching; but it has no positive value whatever, and in modern ethics is more of an encumbrance than a help.

But we must pass to the last of the essays of which we can at present say anything—that "On the Physical and Theological Ideas in the Ethics of Aristotle." Properly speaking, these ideas constitute part of Aristotle's point of view, and should have been brought into closer connection with the previous essay. Aristotle viewed ethics from a physical as well as from a metaphysical stand-point, and both are parts of his method. The one we may call the method of formulæ, the other the encyclopædic method. He was the last of the early encyclopædic philosophers: he tried, like Democritus, Archytas, and the majority of his predecessors, to know and write about everything. He inherited the old feeling of the unity of the world; although, on the other hand, he caused that which has been the curse of philosophy ever since, the notion of the entire isolation of individual sciences. And in reading his Ethics, it is very essential to remember his theory of physical analogies, and his view of ethics as part of the great philosophy of nature. It was a grand and noble idea—that of the perfect cosmos, with its perfect motion and perfect existence, never failing of its purpose, never capable of an abortion; in which man was the only source of confusion, and in which the human will, from its very freedom, was not the most divine of things. For to him the variable was the child of Time, and the immutable was the synonym of the Eternal. The Greeks began their philosophy in wonderment at nature: the first great thought which amazed them was that of its everlasting changelessness—birth and growth, day and night, continually; and the

first generalisation was that of law, or the personification of law in fate. Upon this the notion of human freedom came as an abnormal thing; and the science of ethics only very gradually disentangled itself from mathematics and physics. And although Aristotle, more than any one who had gone before him, separated the spheres of the several sciences, yet the sense of the oneness of the world continually underlies his reasoning. He passes from morals to physics, and from both to mathematics, as though there were little more than a formal difference between them. The modern notion of "comparative sciences" is a return to the truer part of the old theory: it is an immense advance on the previous narrowness of view, and helps us to understand much that seems fanciful in Aristotelian analogies. But our limits forbid us from entering into details: we can only say, that herein Aristotle has never found an abler exponent than Sir Alexander Grant, with whose results, in this case, we almost entirely coincide, especially his sketch of Aristotle's psychology.

And now we are better able to see the position which Sir Alexander Grant, and the school of which he is the reflex, occupy in relation at once to Aristotle and to Oxford.

In relation to Aristotle, they stand half-way between the past and the future, gathering up into themselves the fruits of the one and the seeds of the other. The traditional faith has not quite lost its power: the old Adam, as theologians would call it, keeps continually cropping up; but there are, at the same time, all the elements of a true and rational appreciation. They still move within the sphere of scholastic ideas: it is still "subjectivity obtaining emancipation for itself." For instance, the historical method is very imperfectly applied: there is a relic of the old belief in Aristotle's entire originality, which prevents his being resolved into his elements. And hence there is a want of width of view. Aristotle himself is magnified in relation to other philosophers; and his minor theories are distorted by controversy into important moral or psychological questions, while some of the greater ones are left untouched. For instance, there is the barest mention in the "Essays" of one of the finest sections of the Ethics—the theory of Friendship—which Fritzsch's excellent edition, if nothing else, ought to have brought into considerable prominence. But even in their omissions the "Essays" bear the impress of their origin. And again, we feel the want of a comprehensive view of the formal part of the Ethics; although on this head much has been done, for which we are under deep obligations.

And, lastly, in relation to Oxford itself, this new phase is one of the most hopeful signs of English thought. It is imperfect,

but it is an awakening: it is only twilight, but it is the twilight of dawn. And "there is thunder on the horizon, as well as dawn:" there are controversies within the University and without it—battles to be sternly fought, and victories to be hardly won. The easy opprobrium of heresy already awaits all who leave the beaten track. There are some who will not, and some who cannot, understand: on the one side lies the dogmatism of wilful ignorance; on the other, the dogmatism of narrow sight: but enough has already been accomplished to give reality to hope. In the present stage of the movement, there is, no doubt, a marked imperfection: it is at once a reaction and a transition—having all the scepticism of the one, and all the partiality of the other. And the development which time will give it, will doubtless tend to modify as well as to complete it. The first promulgation of a new system has a double disadvantage: its leading points are distorted out of their true position, and these accidental exaggerations are confounded with the main theory. And thus this "new-fangled philosophy" is liable to be greatly mistaken. Perhaps the very faults which we have laid to the account of Sir Alexander Grant, are in some cases only the fruits of practical wisdom. It may be that he is lingering still in the old paths that the new one may be better appreciated: perhaps he is still an Aristotelian that men may the sooner pass through Aristotle to Plato. But whether this be so or not, his book is a most welcome one; and there are doubtless many, both in Oxford and elsewhere, who will owe to it their first awakening from the long slumber of scholasticism.

ART. V.—*The Powers of the Creator Displayed in the Creation: or, Observations on Life, amidst the Various Forms of the Humbler Tribes of Animated Nature. With Practical Comments and Illustrations.* By Sir JOHN GRAHAM DALYELL, Knight and Baronet. Three Vols. 4to, with numerous coloured Plates. Price L.10, 10s. London: John Van Voorst, Paternoster Row.

M. AGASSIZ, in his recent magnificent work on the "Natural History of the United States,"[1] puts a series of questions to students of Natural Science, well fitted to keep profitably before them the only true basis for a satisfactory philosophy of Zoology. "When," he asks, "in our pride of philosophy, we thought that we were inventing systems of science and classifying creation by the force of our own reason, have we followed only and reproduced, in our imperfect expressions, the Plan whose foundations were laid in the dawn of creation, and the development of which we were laboriously studying—thinking, as we put together and arrange our fragmentary knowledge, that we are anew introducing order out of chaos?" "Is this order," he continues, "the result of the exertions of the human mind, of human skill and ingenuity? or is it inherent in the objects themselves, so that the intelligent student of Natural History is led unconsciously, by the study of the animal kingdom itself, to those conclusions,—the great divisions under which he arranges animals being, indeed, but headings to the chapters of the great Book which he is reading?" "To me," he adds, "it appears indisputable that this order and arrangement of our studies are based upon the natural primitive relations of animal life,—those systems to which we have given the names of the great leaders of our science, being, in truth, but translations into human language of the thoughts of the Creator." The words of M. Agassiz form a fit introduction to the works of one of the most able, industrious, painstaking, and successful of recent Scottish naturalists. Sir John Graham Dalyell laboured from his youth, in the wide and favourable field of study which lay around him, as one who believed that the Perfect Plan of the Creator had been realised, and as one who felt that the true way to make the glory of the Plan manifest to

[1] *Contributions to the Natural History of the United States.* By Louis Agassiz. Boston and London, 1857. In this work, M. Agassiz has given great attention to the difficult subject of *Classification.* His discussions are carried on in the spirit of a true philosophy. So much of this great work as is taken up with Embryology-proper is full of interest. American art has successfully illustrated the text. We have not seen anything in Britain, on the same subjects, which surpasses the style and execution of the twenty-seven plates, devoted to the embryology of the turtle, from drawings from nature by Messrs Clark and Sonral.

others, was, that each student of nature, as he had opportunity and ability, should carefully describe as much of it as he had seen. In this spirit he worked, and the volumes quoted above bear testimony to his success. It augurs well for the healthful influences of scientific study, that so many British naturalists are, in their favourite departments, enthusiastically at work in a kindred spirit. Scotland has, within a comparatively brief period, sent forth a noteworthy band of these. To *Geology* she sent Murchison, Lyell, Fleming, Jameson, Miller, and M'Laren; to *Ornithology*, Jardine, Macgillivray, and James Wilson; to *Aquatic Zoology*, Dalyell and Johnstone; to *Comparative Anatomy*, Goodsir; to *Natural Philosophy*, Brewster and J. Forbes. Each name is well known in other lands—most of them, wherever modern civilisation has obtained a footing; and all have less or more advanced, by their discoveries and their writings, the great branches of science with which their names are associated. Some of them—as Brewster, Dalyell, Fleming, and Goodsir—have excelled in more departments of scientific pursuit than that in which they are most distinguished. And, were we to look at others than those who stand foremost, we would find that, pyramid-like, the list widens as we descend, until we reach at the base a greater number of men, than could have been found at any former period of our history, well informed in the literature of Natural Science, able to appreciate its generalisations, and to recognise its place of prime importance both in the elementary and in the advanced educational arrangements of the age. It was something for a country like Scotland to be able, at a very recent period, to point to such a list of living Naturalists. But time has been thinning the ranks lately. Jameson, Johnstone, Macgillivray, Wilson, Dalyell, Miller, and Fleming, have, within a few years, been gathered to their fathers, and those who stood foremost are now few. Three of the six referred to have been fully noticed in our pages.[1] We propose to add the name of the author of "The Rare and Remarkable Animals of Scotland" to the list.

As many of our readers as have travelled by the Edinburgh and Glasgow Railway may have noticed, about midway between the Linlithgow and Winchburgh stations, a softly rounded green hill to the north of the line of railway. It is capped by a prominent circular tower; and the side which looks towards the "wavy Ochills," and down on the "winding Forth," is covered with forest trees, among which stands Binns House, the family seat of the Dalyells. The hill is one of those verdant trap heights which rise in the carboniferous valley through which the line of railway has been carried, and which, while full of interest

[1] *Macgillivray's British Birds*, May 1853. *Hugh Miller, of Cromarty*, August 1854. *Scottish Natural Science—Dr Fleming*, February 1858.

to the geologist in connection with the position of surrounding strata, add much to the natural beauty of the district. Sir John Graham Dalyell was born at Binns in August 1775. He was the second son of Sir Robert, fifth Baronet of Binns, and of Elizabeth Graham of Gartmore, Stirlingshire. His elder brother having died unmarried, Sir John succeeded to the title and estates as sixth Baronet. He was not the representative of one of the oldest families of Scotland only, but of one, also, which had not grown unmarked in Scottish annals. The Dalyells love to trace their "long illustrious line" to the very dawn of their nation's history. The greatness of the dead is, of course, held to make their living representatives great.

> Δεινὸς χαρακτὴρ κα' πίσημος ἐν βροτοῖς
> Ἐσθλῶν γενέσθαι.

They speak of the founder of their family as a follower of one of those old Scottish hero-kings, whose pastime was war, and who stand grandly out to the imagination, amidst the mists of a half historic, half mythic period. A favourite—so runs the family legend—of the reigning king having been taken by his enemy and hanged in full view of the camp, a great reward was offered to any one who would be brave enough to cut down the body and bring it into the camp. The dangerous proposal seems to have created as great consternation among these valiant warriors as did Goliath's challenge among the hosts of Saul. But, while the leaders hesitated, a soldier stepped from the ranks exclaiming, *dalyell* (I dare). The exclamation was chosen as the patronymic of the race, and the "war armorial" of the Dalyells has ever since been a *hanged man*, with the motto *I dare!* But, leaving the period so distinctly mythic, and halting, as we briefly trace the family pedigree, on that side of it at which it meets the true historic, much of whose truthfulness it can lay claim to, we reach 1388, the date of a rough encounter between the "dowghtye Dowglasse" and the "prowde syr Harry Percye," in which a bold "syr James Dalyell" lost not his life but an eye,—

> "Thys fraye bygan at Otterborne
> Bytwene the nyghte and the day:
> Ther the Dowglasse lost hys lyfe,
> And the Percye was lede awaye."

The next most noteworthy ancestor of Sir John was the famous, or, in the estimate of the Scottish Covenanters, the infamous, Tom Dalyell,—the faithful adherent in his youth of Charles I., and afterwards the favourite of Charles II.,[1] under

[1] "Tom Dalyell,—Though I need say nothing to you by this honest bearer, Captain Mewes, who can well tell you all I would have said, yett I am willing

whom he rose to high military rank. During the misfortunes of the Stuarts, he entered the service of the Czar, and won a name in waging war against Turk and Tartar. After his return home, he was appointed to the command of the King's forces in Scotland. The author of the interesting and well written memoir of Sir John, which is given as an introduction to the third volume of "The Powers of the Creator," published in August last, evidently looks with some complacency on the deeds of General Dalyell, in his attempts to crush the noble contendings of the Covenanters during the middle of the seventeenth century. The inscription on the memorial stone at Rullion Green is quoted with pride.[1] Our sympathy and admiration run in a different channel. They go out towards that little gallant band, who, headed by the brave and chivalrous Colonel Wallace, resisted unto blood, and fought a good fight, at a time when

> "—— swords were gleaming bright,
> And Scotia's bluid was warm and free,"

for the vindication of deep, spiritual convictions touching the religious and civil liberty of their country. Looking at Tom Dalyell in the light of the true history of the times,[2] we cannot come to any other estimate of his character, than that he was crafty, cruel, and vindictive, the perpetrator of deeds which, however worthy of one who had served faithfully "The Great Sovereign and Czarian Majesty," certainly did not become a Scottish soldier. There were, however, gleams of the presence with him of a nobler, better, and more genial nature—features of character which told that the rough work and rude warfare in which he had spent the best years of his life had not put out all the sunshine of a higher humanity. This lingered about him, ready to burst forth when old age left the disposition to the control of affection, and when the delights of first and second childhood were to meet, as if no period of terrible decision and of unsoftened intellectual strength and energy had intervened.

to give it you, under my owne hand, that I am very much pleased to heare how constant you are in your affection to me, and in your endeavours to advance my service. We have all a harde worke to do; yett I doubt not God will carry us through it; and you can never doubt that I will forgett the good part you have acted; which, trust me, shall be rewarded, whenever it shall be in the power of your affectionat frind,

"*Colen, 30th Dec.* 1654." "CHARLES R.

[1] "Here and near to this place lyes the Reverend Mr John Crookshanks, and Mr Andrew M'Cormook, Ministers of the Gospel, and about fifty other true Covenanted Presbyterians, who were killed in this place in their own innocent self-defence, and defence of the covenanted work of reformation, by Thomas Dalyel of Binns, upon the 28th of November 1666. Rev. 12, 11. Erected September 28, 1738."

[2] *M'Crie's Lives of Veitch and Bryson, Wallace's Narrative, Wodrow, Naphtali.*

"On the accession of James the Seventh, he fixed his old age at Binns, his paternal inheritance, adorned by his excellence with avenues, large parks, and fine gardens, and pleased himself with the culture of curious flowers and plants."[1] But though a genial love of nature lent its rays to wait on the declining years of the persecutor of the Covenanters, we gladly resume our sketch of Sir John's pedigree. General Dalyell died in 1685, and was succeeded by his son Thomas, a captain in the King's service, who, for his own merits, but especially for those of his father, was created first Baronet of Binns. The next baronet of note was the author of the "Rare and Remarkable Animals of Scotland," —"The Powers of the Creator," etc. The family had, from its first appearance in history, been associated with the army. For generations the eldest son had been devoted to the military service of the country; and the same profession would, in all likelihood, have fallen to the lot of Sir John, had not an accident in early childhood made him lame for life. "Perhaps it was owing to this physical deficiency that the mind of the youth was early led to seek amusement in mental recreation. Certain it is, that from his boyhood upwards he studied arduously—the dawn of morning seldom finding him in his bed."

At a very early age, Sir John gave promise of fitness for those pursuits in which he afterwards became distinguished. Though in this article we wish mainly to look at him as a naturalist, it is not beside our purpose to indicate other pursuits which he followed with great eagerness, skill, and success. He was fond of music, and not unskilful in the practice of it. An excellent mathematician, he had gained at college the medal in the class of mechanics, and mechanical arts had great attractions for him. In 1796, he became a member of the Scottish Bar, and in the following year was chosen a Fellow of the Society of Antiquaries, and their first Vice-President. Pursuits of an historical and antiquarian character occupied, at this period, much of Sir John's

[1] In the midst of his most active work for Charles, General Dalyell was not without his "redeeming traits." Having met Captain Paton, who had served with him at Worcester, but had afterwards joined the Covenanters and been present at the battles of Pentlands, Drumclog, and Bothwell Bridge, he took the prisoner aside, and said to him,—"'John, I am both glad and sorry to see you. If I had met you on the way, before you came hither, I should have set you at liberty; but now it is too late. But be not afraid; I will write to His Majesty for your life.' The captain replied, 'You will not be heard.' Dalyell said, 'Will I not! if he does not grant me the life of one man, I shall never draw a sword for him again.' And it is said, that, having spoken some time together, a man came up and said to the captain, 'You are a rebel to the King.' To whom he replied, 'Friend, I have done more for the King than perhaps thou hast done.' Dalyell said, 'Yes, John, that is true' (perhaps alluding to Worcester); and struck the man on the head with his cane, till he staggered, saying, he would learn him other manners than to use a prisoner so. After this the captain thanked him for his courtesy, and they parted."—*Scottish Worthies.*

attention. He has left works which the student of history may consult with profit, even now when by the labours of Macaulay, Tytler, Robert Chambers, and others, so much light has been let in upon old paths.[1] Though we have little sympathy with the point of view from which Sir John looked at Scottish history, we may refer to his "Desultory Reflections," as bearing testimony to his patience in research, his discrimination, and his skill in using the abundant material which had been little touched when he began to deal with it.

Apart altogether, however, from the well-marked bias which our author carried into his historical studies, we are interested in meeting with another illustration, in his case, of the frequent union of a love of antiquarian pursuits with strong devotion to Natural History. All who are familiar with the literature of Natural Science will acknowledge, that this union lends a charm to the study. The names of John Ray of Black Notley, and Gilbert White of Selborne, will at once occur to them among the naturalists of the past who loved to wander into the out-of-the-way fields of historical research. There seems to be a tie of kindred between the two pursuits. The faculty by which the naturalist traces the history of any one object, the time and the author of its discovery, the sources whence have come the various bits of information grouped around it, the habits of beast or bird, the wonders of generation and of metamorphosis of insect or of polype life, is precisely the same as that by which the student of antiquities traces the history of prevailing customs, and learns to associate these with the genius of the time; by which, in the application of historic criticism to ancient coins, chartularies, architecture, and sculpture, he makes the past live before us, or brings us into relation with the great ones of bygone ages. Then both pursuits lead to the same delightful gossip—such gossip as is to be met with equally in the fresh word-painting of Audubon and Edward Forbes, and in the racy pages of Pepys and of Walpole. Both antiquary and naturalist have an anecdotal turn. Necessarily removed in their studies, for protracted periods, from

[1] "Fragments of Scottish History," Edinburgh, 1798. In 1801 he edited "Scottish Poems of the Sixteenth Century," and in 1806, "Richard Bannatyne's Journal of Transactions in Scotland, 1570 to 1573." In 1809 he published his "Tract on Monastic Antiquities;" in 1814, "Marioreybanks' Annals of Scotland, from the Yeir 1514 to the Yeir 1591,"—a work in which Sir John first drew attention to certain alleged facts, of which Miss Strickland has made so much use, in her recent attempts to blacken the character of "the good regent," and to make Mary stand out in the new character of a virtuous queen! "Remarks on the Antiquities Illustrative of the Cartularies of the Episcopal See of Aberdeen," 1820; "A Brief Analysis of the Ancient Records of the Bishopric of Moray," 1826; and of "The Abbey of Cambuskenneth—Chapel Royal of Stirling—Preceptory of St Anthony at Leith," 1828. In 1835 was published the best known of his historical works, "The Darker Superstitions of Scotland."

their fellow-men, they carry into society with them whatever has lightened their labours—risen in sparkling bubbles to the surface of the dark depths down into which they have been peering, and which, connecting itself with the "weak side" of humanity, has excited their appreciation of the ludicrous. Thus the genial sunshine which rests on the pages of the true naturalist. He ever associates his own feelings, peculiarities, and tastes, with the living things in the midst of which he moves. Every form of life in earth or air—in belt of ocean boundless and life-teeming—in majestic river, in babbling brook, or lake loving to become mirror to the trees by its margin, and to the clouds as they sail over the deep blue sky, comes to have human feelings for the time attributed to it, to look around with human eyes, and to talk with the lord of creation as with a fellow. The tie between man and the earth stands out in new lights. The familiarity of Eden might seem to have come back again, did not the gun over the shoulder, the insect-net in the hand, the dip-net and dredge in the boat, speak with not very pleasant suggestions of the intimacy between advanced Zoology and Comparative Anatomy! Yet the strolls of the naturalist must ever be pleasant, and, when told, convey pleasure to others, were it for nothing more than this faculty of becoming one with his irrational friends! There, the blue-capped tit (*Parus cæruleus*), as it hangs in the morning light by one foot on the drooping twig of thorn, and catches with wide open bill and roguish look that pure dew-drop, one of the countless millions each of which reflects the full image of the sun, for its morning drink, is held to be slyly saying, "Take a lesson from me!" There is nothing, after all, in man's mode of living like this: nothing like early to bed and early to rise; fresh breezes and this true water of life. Here, that weasel (*Mustela vulgaris*), looking knowingly out from his hole in old moss-covered "dyke," with an eye to the young rabbit which has crossed his path, plainly says, with the twinkle in his bright black eye and turn of his cunning nose, "Appetite, however keen, does not so absorb me as to blind me to the approach of danger." There, in the shore-pool, he meets the hermit crab (*Pagurus*), and makes him vindicate his title to the house of one of the Muricidæ (*Fusus Antiquus*), which he has appropriated, by telling for him the tale of the New Zealander, who gave as *his* title to certain lands which he occupied, "They are mine, because I ate the former owners." And here the limpet (*Patella vulgata*), which he watches, as it plants its broad foot on the side of the glass into which he has dropped it, climbs to the brim, and looking over, with tentacles half protruded, and stupid-like gaze, seems to say, "A certain class of philosophers hold me to be an important step in the march of my sixth cousin, jelly fish,

up to man. Have I not, by anticipation, much of the look of some of these wise ones?" Agassiz, knowing the savage snap of one of the large, full-grown Testudinata, is sure that, under the microscope, he has seen the juvenal turtle snapping precociously in embryo! Lewes admires the house which *Buccinum* carries constantly on his back, and straightway assigns him an advantage over *Brown*, as a builder up of greater beauty with his useful works.[1] Kingsley notices one of the crabs feeding on a piece of stale thornback, and raises him to the rank of an inspector of nuisances, as "*Maia Squinado, Esq.*"[2] Illustrations might be multiplied. The habit is a common one, and, no doubt, has had a large share in popularising the current literature of science.[3] The tendency assumed a different form in olden times. Thoughtful men acknowledge the tie between man and the forms of life around him; and, as he looked out on the great and but little known ocean, imagination found the forms of land-life repeated there. Any of our readers acquainted with Sylvester's Translation (1580) of the famous "Week" of Du Bartas, will remember his catalogue of the "Things living in the Seas;"—

> "Seas have, as wel as skies, sun, moon, and stars:
> As wel as aire, swallows, and rooks, and stares:

[1] "In vain does our pride rebel at the thought of consanguinity with a mollusc; the difference between Brown, with the house he built, and Buccinum, with the shell he secreted, lies in the number of steps or phenomena interposed between the fact of individual existence and the completion of the building. Brown is aghast at the suggestion, and says he hates metaphysics. This much he will perhaps admit, namely, that whatever other advantages our habitations may have over those of insects and molluscs, it is clear they have not the advantage in architectural beauty subservient to utility. Consider man from a distance—look at him as a shell-fish—and it must be confessed that his habitation is surprisingly ugly. Only after a great many intermediate 'steps or phenomena' does he contrive to secrete here and there a palace or a parthenon which enchants the eye."—*Seaside Studies.*

[2] "For all his good deeds had not as yet cost the state one penny. True, he lived by his business; so do other inspectors of nuisances; but nature, instead of paying Maia Squinado, Esquire, some five hundred pounds sterling per annum for his labour, had contrived, with a sublime simplicity of economy, which Mr Hume might have envied and admired afar off, to make him do his work gratis, by giving him the nuisances as his perquisites, and teaching him how to eat them. Certainly (without going the length of the Caribs, who uphold cannibalism because, they say, it makes war cheap, and precludes entirely the need of a commissariat), this cardinal virtue of cheapness ought to make Squinado an interesting object in the eyes of the present generation, especially as he was at that moment a true sanatory martyr, having, like many of his human fellow-workers, got into a fearful scrape by meddling with those existing interests, and 'vested rights which are but vested wrongs,' which have proved fatal already to more than one board of health."—*Glaucus.*

[3] Perhaps it is nowhere so fully shown as in young Buckland's "Curiosities of Natural History," a book in which there is much acute observation and more true science than at first meets the eye, under the dashing style of The Life Guards' Assistant Surgeon.

> As wel as earth, vines, roses, nettles, millions,
> Pinks, gilliflowrs, mushrooms, and many millions
> Of other plants, more rare and strange than these,
> As very fishes living in the seas:
> And also rams, calfs, horses, hares, hogs,
> Wolves, lions, urchins, elephants, and dogs,
> Yea men and mayds: and, which I more admire,
> The mytred bishop, and the cowled fryer."

Naturalists generally write in such a style now, as that, while the multitude can read their works with profit, the circle, "few but select," of their brethren of high scientific attainments turn not away from them. It is found that science can come down and walk in the crowd without dread of losing caste, and that her discoveries can be popularised without being degraded. All that is needed in order to this simply is, that her votaries should look at their work in the spirit indicated above, and should mix up accounts of the habitats and the habits of the lower animals with the exact descriptions of outward form, of internal structure, or of the adaptation of their forms to climate and to modes of life. Most important benefits are sure, sooner or later, to result from the growth of this kind of literature. Not only will the young be won in greater numbers than heretofore to the study of Natural History, and therein find substitutes for pursuits which lead directly to moral degradation, but benefit will result to the Church likewise. The literature of Natural Theology is increasingly withdrawing from the high platform of Metaphysics, and standing on ground much more within reach of the bulk of the Church's members. It is, too, dealing more with easily appreciable phenomenal aspects—the order of creation—the comparison of palæontological with existing fauna—the relations between different classes of lower life—their modes of propagation, and the like, than with those nice adaptations between organs and functions, in which the physico-theologians of the *Derham* and *Bridgewater* School found their favourite, and, no doubt, both then and now, instructive and profitable themes. Sir John Dalyell's magnificent work, "The Powers of the Creator," leads us, at one point and another, into questions touching the former class of physico-theological topics. But we resume our outline sketch.

Sir John was a great worker, and his habits of untiring application, in the study of his favourite branches of Natural Science, enabled him to keep his printers busy. It was also, no doubt, much in his favour, that his private means enabled him to gratify his taste, without let or hindrance, for publishing expensively illustrated works in Natural History.[1] In 1799 he

[1] Yet he had his trials in this. A misunderstanding with his engraver led to a delay of nearly five years in the publication of "The Rare and Remarkable

translated a volume of Spallanzani's "Tracts on the Nature of Animals and Vegetables;" and in 1803, other two volumes, accompanied by an Essay of his own, entitled "Physiological Reflections." In 1814 he published a thin octavo on "Planariæ." Baron Cuvier honoured him with a communication, in which he bears testimony to the value of this work.[1] It was, however, in 1847 that his first truly important work in Natural History was published, namely, "The Rare and Remarkable Animals of Scotland." The circumstance referred to in the note below, explains how Sir John did not reap the full honour, which would otherwise have been assigned to him, in connection with the discoveries brought out in this valuable contribution to Natural Science. The ground over which Sir John travels, has since the publication of his work become of deepest interest, and continues to attract to it and to engross the attention of ablest naturalists. Much has been done in it by men like Sars, Steenstrup, Siebold, Van Beneden, Kölliker, Quaterfages, Owen, Fleming, Johnstone, Allman, etc.; and it is a testimony of no ordinary kind to the able and accurate observations of our author, that their labours have all tended to verify his remarks. In 1851, the year of his death, Sir John published the first volume of "The Powers of the Creator Seen in Creation." In 1853 the second volume was given to the public, under the superintendence of Miss Dalyell and Dr Fleming, and the third volume in August of the current year. The tie between Sir John and his sister was peculiarly strong, tender and lovely. They had kindred tastes, and were constant companions. He never lost an opportunity of testifying how much he enjoyed her society in the midst of his favourite pursuits. She lived in the light of his countenance. Her care for him was unceasing:

> "It seemed to lift her mind above
> All care for other earthly things."

Animals of Scotland," in consequence of which he was deprived of the credit of having discovered the true propagation of *Hydra Tuba*, etc. This hindrance had so annoyed him, that, but for the entreaties of Dr Fleming and his sister, he would have stopped the work.

[1] "Monsieur,—Permettez moi de vous remercier, non seulement du beau présent que vous m'avez fait en m'envozant votre livre, mais encore du service que vous avec rendu à l'historie naturelle en y remplissant une lacune demeurée vuide malgré les efforts d'hommes aussi habils que Müller et autres. C'en par des travaux de ce genre, par des observations assidues sur des espèces particluièrs que l'on enrichire le plus surement cette belle science; je serais bien heureux de pouvoir vous exprimes plus divertement l'estime que votre ouvrage me inspirée; si vous venez jamais dans notre pays, j'espère que vous me fournirez l'occasion de vous en donnec des preuves; agreez je vous prie l'assurance de la haute consideration avec lacquelle, je suis, Monsieur, votre très humble et tres obeissant Serviteur,

"Bn. Cuvier."

"*Paris, le* 28 *Juin* 1822."

Dr Fleming prettily marks this in his preface. "This zeal," he says, "to promote the author's fame, and advance at the same time the interest of science, was naturally to be looked for from the individual referred to in the second volume of 'Rare and Remarkable Animals of Scotland,' p. 99, where, in reference to the Cristatella, he says, 'I am indebted to the sedulous care of an affectionate relative, the companion of all my excursions, the encourager of all my exertions, in so tedious, laborious, and difficult a work, for the finest of any—that exhibited to the British Association, taken by herself in the garden pond at Binns House.' Another passage, dictated by the same grateful considerations, occurs in the same volume, p. 124, under Plumatella repens. 'Of these an admirable example occurred near a ruinous mansion called Fenton Tower, in the county of Haddington, for which I was indebted to that same affectionate companion of my excursions already noted, who takes the liveliest interest in all my pursuits, and who values the beauties of nature as demonstrations of the Divine essence vouchsafed to the gaze of admiring mankind.'"

The point of view from which Sir John looked at the natural world, supplies a key to the numerous reverential remarks which occur throughout his works on Natural Science. Creation was nothing to him except as seen in the Creator. In the midst of his researches, a great thought of God as the Author of all things was ever present with him. He ever seems to his readers as walking in the great world-temple with bared head and calm look of reverence. He sees in the works of God the images of thoughts which lie in the depths of the Eternal Mind—things whose patterns are in the heavens. Thus the whole world of life led his thoughts up to a Living One,—One, no doubt, who, *as seen in nature only*, never draws so near—never puts Himself in such close relationship with the soul of man, as even to suggest the way of the lost soul's restoration to His favour which *is* life; but One, nevertheless, who reveals His eternal power and Godhead in His works. And fresh, healthful impressions are got in thus seeking after Him, and in observing how

> "Harmony results
> From disunited parts, and shapes minute,
> At once distinct and blended, boldly form
> One vast majestic whole."

But let us examine more closely Sir John's "Powers of the Creator." The well written Introduction is devoted to a review of the Wisdom of God seen in the Order of Nature, and in Means provided for the preservation of life on the earth. One or two topics here touched upon claim our attention, both because they suggest subjects to which Sir John's mind must

frequently have turned, but which are referred to merely as helpful in the elucidation of his favourite studies, and because they illustrate that habitually upward glance which we have noted. "We are compelled," he says, p. 4, "to reject the theory of successive creations as an unsound doctrine—resulting merely from imagination—unsupported by evidence." Now, we are not to hold this as indicative of our author's views of other epochs than the present one. This seems clear from such expressions, occurring elsewhere, as—"Monsters, the relics of a former world"—"Myriads seem to have been involved in one common ruin," etc. The point condescended on, though the reference is not put with his usual directness, touches the claim for the periodic introduction of new forms of life into the present system of nature. Some have sought shelter for their ignorance under the theory, that living things recently discovered must have recently been thrust by an Almighty hand into the sphere of present being. On one of two grounds only could this be entertained. We must either have been told of it by the Creator Himself, or we must have been taken into the glory of the awful presence, and been made witnesses of the creative act. The testimony of nature harmonises with that of revelation as to the origin of the existing orders of life. But the view indicated has, whether in the mind of the author or no, most important bearings on several controversies which are growing into greater power every day, and in connection with one of which a battle may yet have to be fought by Christianised science. We mean what may be called the *overlapping life-theory* of some geologists. This acknowledges no chaos, no general breaks in the chain of being, no halts in the grand march of creative power, from the time when Jehovah laid earth's foundations upon the floods, up to the time when the earth was fitted for man, and man formed to inhabit the earth. We cannot now dwell on this. It is, however, capable of being put in many new and interesting lights, and we may return to it. It is enough at present to remark, that, while a strong case can be made out from Geology for successive general breaks in the appearance of living beings on the earth, there is no proof, even strongly presumptive, for this overlapping theory. The first public statement of doubt on this theory was, we believe, made in this Journal; and we rejoice to notice the directions which such discussions are beginning to take in the works of many, who, on the ground of scientific qualification, are entitled to be listened to. Agassiz,[1] for example, has adopted the theory of Elie de Beaumont on The Age of Mountains, and has associ-

[1] "To form adequate ideas of the great physical changes the surface of the globe has undergone, and the frequency of these modifications of the character

ated with it, in his recent great work, views of the order of creation,—the recognition of breaks in the progress of God's self-manifestation in creation during that wonderous Past, to the last stage of which the time from Eden till now may have been but as an hour ago,—which we regard as the full inauguration of a strong reaction against the anti-chaos theory, recently associated with one or two great names.

The remarks which occur at pp. 5 and 6, on the mode of propagation which obtains among some of the humbler creatures, show how closely our author had observed the operations of nature. They are interesting, also, as indicating that his thoughts had been turned to certain physiological questions which have had much attention directed to them since the publication of the first volume of this work. These refer to the supposed identity between the seed and the bud in vegetables, the alleged analogy between the seed of the vegetable and the egg of the animal; and, as an inference, the alleged identity between germination and generation. Some of these topics are referred to by Mr Lewes, in his "Seaside Studies," with characteristic ability; and in Dr Harvey's works,[1] they are handled in a peculiarly able and interesting way. The value of our author's labours is enhanced by the fact, that in all his zoological investigations he

of the earth's surface, and of the coincidence with the changes observed among the organised beings, it is necessary attentively to study the works of Elie de Beaumont. He for the first time attempted to determine the relative age of the different systems of mountains; and showed first, also, that the physical disturbances occasioned by their upheaval coincided with the successive disappearance of new ones. In his earlier papers he recognised *seven*, then twelve, afterwards fifteen, such great convulsions of the globe; and now he has traced, more or less fully and conclusively, the evidence that the number of these disturbances has been at least sixty, perhaps *one hundred*. But, while the genesis and geology of our mountain systems were thus illustrated, palæontologists, extending their comparisons between the fossils of different formations more carefully to all the successive beds of each great era, have observed more and more marked differences between them, and satisfied themselves that faunæ also have been more frequently renovated than was formerly supposed; so that the general results of Geology proper and of Palæontology concur in the main to prove, that, while the globe has been at repeated intervals, and indeed frequently, though after immensely long periods, altered and altered again, until it has assumed its present condition, so have also animals and plants, living upon its surface, been again and again extinguished and replaced by others, until those now living were called into existence, with man at their head." Again—"The simultaneous disappearance of entire faunæ, and the following simultaneous appearance of other faunæ show, further, that, as all these faunæ consist of the greatest variety of types, in all formations, combined everywhere into natural associations of plants and animals, between which there have been definite relations at all times, their origin can at no time be owing to the limited influence of monotonous physical causes, ever acting in the same way. Here, again, the intervention of a Creator is displayed in the most striking manner in every stage of the history of the world."—*Agassiz's Contributions to the Natural History of the United States.*

[1] "Trees and their Nature." London: Nisbet and Co., 1856. "The Identity between the Bud and the Seed." Nisbet and Co., 1857.

rigidly excludes information at second-hand. When the views of other naturalists are quoted, it is never in order to fill in a picture or to supplement his own information, but simply as corroborative of what he has observed, or to be set aside by his observations. Too much importance cannot be attached to this peculiarity. He speaks of what he has seen; and the 145 magnificent plates introduced, in illustration of the text, have been taken from as good and healthy specimens as could be got, and are coloured from life. With a modesty which will ever be found characteristic of those who have made great attainments after much time, and painstaking self-denying labour, Sir John leaves his last work in the hands of his readers with the remark: "I wish very earnestly to guard the intelligent reader from expecting a complete history of the living subjects presented before him. This would be an undertaking far surpassing my capacity; indeed, I believe, exceeding the capacity of any individual, for of many it is inconceivably obscure."

The first volume is mainly devoted to the *Echinodermata* and the *Crustacea*. In our notices of the subject-matter, we will not confine our remarks to the information gathered by Sir John, but will include our own, or that of others, as occasion may require. The opening monograph on Holothuria (the *beche de mer*, or sea-cucumbers) occupies nearly seventy pages, contains the fruits of thirty years' observation and patient research, and has fifteen plates in illustration of the external form and comparative anatomy of this interesting order of sea life. Naturalists who have sought an intimate knowledge of the Holothuroidea will sympathise with the earnest statement of the difficulties which our author found in his way. Loving, for the most part, deep water, they are more safe from the intrusion of the student than the creatures which linger in the pools when the tide has retired, or which find their enjoyment in the easily accessible sea shallows. And even though the modern all-grasping dredge may succeed in bringing one and another into the hands of the naturalist, yet the slightest injury done, in taking or handling them, is sure to mislead him in his description. Only, then, by having well-grown and healthy individuals lifted without injury into the aquarium, will he find himself in circumstances to put in action that patient and close observation needed in order to reach a generally correct estimate of their changes in form and their habits of life. "The exterior integument of the Holothuria," says Sir John, "with the tough coriaceous inner layers, constitutes a capacious bag, wherein are contained the respiratory, the intestinal organs, and the ovarium. The head is also retracted within it when at rest; but in action it protrudes, unfolding a fine luxuriant flower or arborescence, constituting what

are supposed tentacula. The body of most specimens assumes the form of a horse-shoe, crescent, or cucumber; and a stream of water, playing like a fountain, is forcibly discharged from the posterior extremity." Our author's description is both graphic and to the life; but we cannot sympathise with the jealousy with which he regards the application of Comparative Anatomy to several questions touching this order of Echinoderms. Sir John loved so much to behold the beauty of the external form, and to associate that with the habits of the creature, that he was ever loath to permit the knife of the anatomist to deal with healthful subjects. But still it must be borne in mind that peculiarities of structure are ever safer guides to a true knowledge of the place which any one creature holds in creation—the great family under which it should be ranked—and, even, to the explanation of well-marked habits—than the general characteristics of outward form can be. Readers of his works will have frequent occasion to notice this peculiarity. It will explain to them also his distrust of the wisdom which has assigned to one creature and another a well-defined place in the order of creation, on the basis of structural peculiarities. This has led him to make the strong statement, that Holothuria seems to stand alone, and is not allied to any other genus. Whereas a complete knowledge of its structure in connection with that of other creatures, seeming at least to border on it, would have led him to associate it, on the one hand, with *Echinida*, and on the other, with *Sipunculi* and their allies,—connecting in this way the pure types of the *Radiata* with those of the *Articulata*. Holothuria would thus occupy a well-defined place in a system of classification, having for its foundation well-marked structural peculiarities.[1]

Seven plates are given in illustration of Holothuria Pentactes (*five-ribbed sea-cucumber*). The text reads like a novel of engrossing interest. The remarks are the fruit of the examination of more than sixty individuals. Five-ribbed Holothuria is to be met with on most parts of the Scottish coasts, and at a depth of from one to eight fathoms. Sometimes it is found floating amidst

[1] At the meeting of the British Association in 1835, among other remarks, Agassiz made the following on the place assigned to *Organs:* "Groups of animals are impressed with such characters as are easily recognised, yet their order and succession have been determined by no general principle. In most systems, some organ or system of organs has been *arbitrarily* assumed as a basis. Each class in the animal kingdom exhibits, in an eminent degree, the development of some one of the animal functions. The Vertebrata exhibit the organs of the Senses; the Invertebrata—for example, worms—the system of Nutrition; Crustacea, Circulation; Insects, Respiration; and Mollusca, Generation. In fishes the predominant element is the bony skeleton; in reptiles, the muscular structure; in birds, sensibility of the nervous system; and in mammalia, the perfection of the senses. Each of the sub-classes of the higher group is represented among the mammalia, along with its own peculiar type."—*Reports*, p. 67.

beds of Laminaria (sea-tangle). The full-grown animal seems to be about two feet long and four inches thick. The form, when at ease, resembles that of a well-grown cucumber. The head, if we may so name the anterior arborescence, can be drawn at pleasure within the body. When fully expanded, it exhibits the form of a broad disc with a central orifice, and surrounded with beautiful branching tentacula. In colour it is shaded chocolate; and the body is traversed from tip to tip with five longitudinal rows of retractile suckers, brighter in colour than the main covering. When first taken, the arborescent tentacles and the suckers are not generally visible. The skin seems thick, hard, and barky, and the extremities are brought together, giving it, says Sir John, "the form of a bullock's heart." But it is at night that Pentactes shows all its beauty. Such a change passes over it as almost to persuade us that we have a wholly different creature before us. The body is distended, and assumes the graceful crescent shape; the skin looks thin and soft; the branching tentacles sweep the water with easy motion, and seem in succession to bring to the orifice in the centre of the disc, beautifully fringed by them, supplies of nourishment; and the posterior jet acts with vigour—with such vigour, "as sometimes to spout a distance of eight or ten inches." A singular feature of Holothuria Pentactes is its liability to rupture. The slightest abrasion of the skin will lead it to cast out its intestinal organs, or its ovarium; and even confinement, without direct injury, is sufficient to bring on this.

We can do little more than name the other individuals described with graphic power by Sir John.—We have the beautiful and timid *Holothuria Fusus*—the shy, horseshoe-like *H. Scotica*—the *H. Bodotriæ* (*Œnus* of Forbes), with its power of spontaneous subdivision and renewal of the parts thus lost—and the lovely *H. Phantopus*, with its sack-like, *bistre* coloured body, its light-brown neck (shall we call it?) spotted with carmine, its shaded carmine disc and spotted arborescent tentacula, with the quiet blue connecting membrane at their uniting base, and with its suckers confined to a small space on the lower surface of the body, unlike other Holothuriæ, which have these instruments of adhesion and of motion dispersed along the whole surface of the body. All the individuals described may be met with on the Scottish coast. After a storm, during which a violent gale had been blowing from the north-east, we found, several years ago, a good many specimens of dead Holothuria Pentactes, on the shore between Portobello and Musselburgh,—all of them more or less injured.

Turning to Sir John's researches among the Asteroidea, we find, as might be expected after the classic monograph of Edward

Forbes on "British Star-Fishes," that our author's labours are not to be ranked, as to completeness, with those of the late brilliant and variedly accomplished Professor of Natural History. Forbes' opportunities of research were more frequent; and, moreover, he had all the recently increasing literature of this branch of Natural Science under his eye. When our author began his work, comparatively few had given themselves to the study of this department; and such as had done so, satisfied themselves with only a vague indication of differences in the few species described. It must be held a high testimony to Sir John's accuracy, to be able to affirm that his characterisation of the species given in this work, may stand with advantage side by side with the descriptions of Forbes. His notes may not have that attractiveness of style which added such interest to all that the Professor wrote; nevertheless, they do not fail to convey most distinct and accurate information on every individual to whose form and habits he had given his attention. Neither do Sir John's notes suggest that there existed any of that *brusquerie* of manner about him, as an investigator, which ever falls like a fascination especially on young students. In reading our author's descriptions, we ever picture to ourselves a not very robust student, quietly watching, amidst the luxury and ease of a home of refinement and taste, the objects of his study. But Forbes' books set us in the heart of the fields of research. With him, we seem to tread the slippery shore—to wade amidst rock-pools—to feel in our hands green ribboned *Zostera* and bunches of slimy *Laminaria*. As we read, we seem to push out with rapid stroke or spreading sail into "The sea, the open sea,"—to feel the swell of the billows—or to gaze into its depths, as the sun shines brightly, and to watch the living things innumerable which find a home in the mighty waters. And when net and dredge have done their work, drawn up buckets full, we hear the jovial laugh of the boatmen, the ringing shout of "the juniores," as sparkling wit and quiet humour fall from his lips, who was not only one of the greatest of modern naturalists, a king among princes, but a man most attractively companionable. It were, indeed, a pleasant task to analyse the magnificent monograph of Forbes, but we are warned by our increasing pages to return to our proper theme.

Sir John divides his remarks on the star-fishes into two sections, one of which is devoted to *Asterias*, the other to *Ophiura*. The name at once suggests the animal referred to under the first section. With the form of the more common species every visitor to the sea-shore is familiar. The mouth of Asterias is in its disc or proper body, generally, though not always, placed at the side. It moves by means of suckers, which fix their cup-like

ends on the rock; while one set remains fixed, another is thrown out; when set number two have fastened, set number one are unloosed, and the whole body is brought forward. Progress is thus secured. Its food consists of decayed animal matter and molluscs. One (*Asterias Rubens*), which we captured very recently in a pool not far from St Abb's Head, was in the act of casting out the empty shells of young *Mytilus edulis*, on which it had been feeding; and we noticed that, while every bivalve was empty, very few of the single valves were injured, while those whose hinge had stood the rough handling in the stomach of Asterias were generally broken at the edges. As the owl, the hawk, etc., have the power of rejecting by the mouth, in oval pellets, the bones which resist the digestive organs, so, though not as pellets, the Asterias can get quit of the shells of molluscs, and with greater ease. They do not seem to experience the difficulty which the birds show they have in this work, by the painful twisting of the neck and crop before the pellet is ejected. But many of the star-fishes appear to possess a more wonderful power in relation to digestion than this—a power which beings higher in the rank of life might covet when they have feasted to surfeiting. They can extrude the whole stomach by the mouth, and make very clean work of everything which is not welcome in it. We were anxious to carry away the St Abb's Asterias Rubens, because the specimen was one of rare size and beauty: so much so, that an intelligent fisherman remarked, in pure Berwickshire *Doric*, that he "hadna seen sich like a' his born days." But, on looking at it a few hours after it had been, as we thought, carefully boxed, we found, as we feared, that it had of its own free will and pleasure determined that, as it threw off the mortal coil, it would also throw it to pieces, for every ray was broken. "In confinement," says Sir John, "as well as in the sea, star-fish are subject to frightful mutilations. Not only are they subject to lose portions, or even entire rays, but the whole animal literally falls to pieces. Nay, after a day of correct and satisfactory observation, the following morning will sometimes present nothing but a quantity of white granulations in the vessel which had contained a perfect and beautiful specimen. This kind of decomposition is perhaps a casualty incidental to the whole. I know of none exempt from it. But, as if in compensation, nature has endowed these creatures with surprising reproductive energies. All the lost organs are replaced by others! and although some authors have denied that a complete specimen may be formed from a single ray, this is a fact which certainly does ensue. But whether some insensible fragment of the disc must have necessarily remained, I cannot presume to specify." Be this as it may, the forms of life to which Sir John devoted

so many years of observation, reveal to us wonders far greater than the renewal of a star-fish from one ray, and are fitted to bring us into full sympathy with the remarks of *Reaumur*:—"Il faut porter la foi humaine plus loin qu'il n'est permis à des hommes éclairés, pour le croire sur le premier témoignage de celui qui raconte, et assure l'avoir vu. Peut-on se resoudre à croire qu'il y ait dans la nature des animaux qu'on multiplie en les *hachant*, pour ainsi dire, par morceaux." But whether or no the Asteroidea have recourse to this voluntary break-up which the Frenchman wondered over, as he found it employed by some insects in order to propagation, it nevertheless presents sore hindrance to the study of some of the star-fishes. Some of our readers will remember Edward Forbes' difficulties in his attempts to get the rare *Luidia fragilissima* into what to it is the deadly pail of fresh water. "A Luidia came up—a most gorgeous specimen. As it does not generally break up before it is raised above the surface of the sea, cautiously and anxiously I sank my bucket to a level with the dredge's mouth, and proceeded in the most gentle manner to introduce Luidia to the purer element. Whether the cold water was too much for him, or the sight of the bucket too terrific, I know not; but in a moment he proceeded to dissolve his corporation, and at every mesh of the dredge his fragments were seen escaping. In despair, I grasped the largest, and brought up the extremity of an arm with its terminating eye, the spinous eyelid of which opened and closed with something exceedingly like a wink of derision."

The modes of reproduction peculiar to the Asteroidea long baffled the watchful observation of naturalists. Much light has, however, been cast on this by the researches of recent years. In some, the ovaria occupy spaces along the rays; in others, they surround the disc; while in others they have a place at the root of the rays, either exposed, as if on the surface of the disc, or firmly placed between the rays at the points where they meet the proper body. A curious statement has been made touching the alleged ant-like attachment of the Asterias to her eggs. "The eggs," remarks Carpenter,[1] "are not extruded at once and left to their fate, but the parent retains them for a considerable time in a cavity, which is generally formed by drawing up the disc and the bases of the arms; and it is said that when the ova have been removed from this shelter, and placed at some distance from the parent, the latter has been seen to move directly towards them and take them up again,—an exertion of volition which we should hardly have expected to meet with in creatures so low in the scale of organisation as these!"

The individuals described by Sir John are Asterias *glacialis*,

[1] Zoology, vol. ii., p. 465 (Bohn's Library).

rubens, *oculata*, *aranciacia*, *indica*, and *papposa*. Let us linger for a little beside Asterias papposa—the Solaster, or Sun-star, of Forbes. It has attractions, both because it is well known as abounding on our coasts, because of its great beauty, and specially because its form gives plain indications that, if we might so put it, the thoughts of the Creator revealed in it suggest to us a transition from the true Asterias to other types of life. True, all creation stood distinctly out before the All-seeing, and no one part could be excluded from His perfect knowledge, while at His bidding peculiar forms rose into full being! But *we* see only the type which for the time occupies our attention; and we observe not other types, except in so far as they are suggested by that under review. Yet in every department of Zoology we meet with these types suggestive of transition—forms of life which, while their place may be well determined, have about them characteristics which carry our minds forward and upward to other forms higher, relatively, in the scale, as having more complex and better marked structural peculiarities. Thus, *Lepidosiren annectans* keeps our thoughts oscillating between fish and reptile; *Ornithorhyncus paradoxus* is constantly suggesting duck and otter; and *Lanius excubitor*, with true sparrow-like claws, and hawk-like hooked beak, sets before us the point at which the true Passeres seem hankering on the edge of the Accipitres. Were it not waste of power to send other arrows than those which have already been sent, from so many skilful hands, into the dead Development theory, we might find many sharp ones at the very points in Zoology at which its disciples hoped to find their strength. There are features associated with those very connecting links of life, in the wide range of being, which go directly in the face of Development dreams. But we again digress.

Mr Gosse,[1] in his usual happy way, has pointed out the common principle which can be recognised in the whole group of the Echinoderms, indicated the model according to which all seem to be formed, and marked the points of transition.

"The model," he says, "is a star-fish with five radiating points or rays, such as we see in the most simple condition in the sand-star (*Ophiura*), a central body, round and flat, with five long taper rays set around the edge, like the tails of snakes, diverging in as many directions. Sometimes these rays consist each of two filaments springing from the same base, and then we have a *Comatula;* or the ray may divide, and subdivide, and subdivide again, to a high degree of ramification, until the terminations are immensely numerous, and of hair-like fineness—and thus we have a Medusa's head (*Astrophyton*). The rays may become so broad at the base as to merge into one

[1] Marine Zoology, vol. i. p. 54.

another, and we have the common star-fish (*Uraster*); they may be more numerous than five, and we have the sun-stars (*Solaster*); the angles may be gradually filled up, the rays becoming shorter and shorter, as in the starlets (*Goniaster*); and at length they may be quite lost as rays, appearing only as the five angles of a disc, and then we have the bird's foot (*Palmipes*). The starry form has now quite disappeared, but changes still proceed in the same direction; the body, from being flexible, becomes invested with strong plates, clothed with moveable spines, and the five-angled outline is more and more lost. It is still discernible in the cake-urchin (*Echinarachnius*); but in the true Urchins, or sea-eggs (*Echinus*), the form is become almost globular, and the chief traces of the quinary arrangement are in the rows of minute holes, which radiate *in five pairs*, from one pole to the other of the globe."

We return to Sir John's second subsection—the Ophiuridæ, among which Mr Gosse, as we have seen, finds the full starting-point of the Echinoderms. Our author points out those features which distinguish this group from Asterias, and describes several species. It is clear, however, that he is not so thoroughly at home in describing the individuals of this subsection as we have found him in his treatment of the former one. He writes with a hesitancy which shows that he had not devoted to them as much attention as to the others. We miss, too, a statement of the remarkable metamorphosis displayed in the propagation of Ophiura. Let us refer to this. The eggs of Ophiura are found in spring lining the margin of the disc. They are of a bright red colour. In their case, however, unlike the eggs of most oviparous animals, they do not at once pass into a form like that of the parent—they do not launch into active life as young Ophiuræ. They assume a larval condition, in which they were long regarded as independent creatures—the *Pluteus*. Professor Müller first found this small acalephoid creature in the sea at Heligoland, and named it *Pluteus paradoxus*. When watched, it was found to pass into perfect Ophiura. This discovery was not only interesting in itself: it was so, likewise, as ultimately leading to another kind of chain by which the sand-star might be linked to the sea-urchin, as both rightly ranked under Echinodermata; for it was found that another kind of Pluteus changed into Echinus. The singular manner in which this change is produced cannot be better stated than in the words of Carpenter. "Around the stomach and œsophagus of the *Pluteus*," he says, "small sacs make their appearance, at first contained within its body, but gradually increasing in size, until they form the disc of the future star-fish, suspended, as it were, from the lower part of the bell of the larva. Indications of the arms then present themselves; calcareous matter begins to be deposited in

the skin; the larval mouth is displaced, and a new one is formed; the young star-fish continues increasing in size, until at last the larva is got rid of altogether,—the only part of it which remains in the perfect star-fish being the stomach."

Our author gives us a brief notice of *Comatula Barbata*, one of the types bordering on Echinus. Before passing to Echinus we may remark, that this was long held to be the only living European representative of the Crinoidean genus, Pentacrinus, of the *Lias*. It used to be described under the name of *Pentacrinus Europæus*, as corresponding to the true fossil pedunculated *sea lilies;* but since it was discovered that the sessile character is peculiar to the young only, and that the full-grown species have both the general structural peculiarities and the same habits as the Asteroidea, it has been associated with them. This reference recalls a thought which must frequently present itself to the geological readers of this work. Our author's attention does not appear to have been much directed to Palæontology. The result has been, that he has missed many peculiarly favourable opportunities for not only throwing light upon the living forms under description, but for conveying to us novel views of the probable habits of those forms of old world life, which find their representatives among the creatures of the present epoch.

The pages in which Sir John describes the structure and habits of Echinus, and the accompanying illustrative plates, leave little more to be desired concerning the ground which he has traversed. The hints which were thrown out, for the first time, touching peculiarities of organisation, have been fully verified by succeeding observers. But, instead of following our author's descriptions, will our readers wander with us to the shore, and be introduced to living Echinus Sphæra. The approach to his favourite habitat is worthy a notice. This we give by filling up some jottings made lately on the coast to the east of North Berwick:—14th August 1858. Mid-day. Bright sunshine. Tide rising. In a deep fissure of the rough trap, widening seaward, and having nearest the sea an elevated, lip-like front, sufficiently high to retain a considerable quantity of water when the tide retires, and yet to be among the first pools refreshed by its flow, we found a little world of marine life. The action of the waves has scooped out deep recesses, which are fringed by luxuriant algæ. In one of these a little company of spotted gobies (Gobius minutus) find a hiding-place and abundant food. Our dip-net encloses three. Let us look at the largest. After lying more than ten minutes out of the water, it was still alive; and the vigorous spring of its tail told how much longer it might have survived on land, had not anatomical in-

tentions hastened its death. It must have been this power of Gobius to dwell so long in upper air that led Ovid to sing—"Hic summa piscem deprendit in ulmo." Count the shells of young molluscs which are still fresh, though empty, in his capacious stomach! This is not so easily done. We begin with the infant mussels (*Mytilus Edulis*), and find fifty-four! Next in size are four pigmy tops (*Trochi*), and next we have seven very young whelks (*Littorina litoralis*); while, floating amidst the chocolate-coloured juice, are many yellowish specks, which, when looked at through a pocket lens, turn out to be infant univalves also. Gobius must have made a sumptuous early dinner! On the west side of one of the shelving ledges we counted no fewer then ten Actineas, old and young, all expanding their graceful coronal of tentacles, as if enjoying the bright sunlight which was warming the waters around them. One of them was very large: evidently an aged one in the tribe. If Sir John Dalyell could show one which had lived beside him in comparatively unfavourable circumstances for twenty years, and if Dr Fleming could point to another, which was taken in this very neighbourhood in 1828, as but lately in health and vigour, may not this one have held on by his rocky resting-place all through the storm and calm, the darkness and sunshine of thrice thirty years? May not the days be but as yesterday to its life, when martyrs walked with God on the Bass, that "perilous rock," which now stands grandly out in sunlight—

> "With yelling meawes, with sea-gulles, hoars, and bace,
> And cormoyraunts, with birds of ravenous race,
> Which still sit wayting on that wastful clift?"[1]

Lying on a patch of sand in the bottom of the pool, is a full-grown Mail Mollusc (Chiton fascicularis), so very like the sand on which he rests that the most skilful eye could not detect him, were it not for the seven transverse shades at which plate meets plate in his coat of mail. His spinous margin, which might otherwise have indicated his presence, seems to be partially hid in the sand. Caught and bottled, how active he is for a little! But he soon takes to a small rounded pebble in the bottom of the glass, and having twisted himself around it, prettily revealing the margin of the shell-plates, remains in *statu quo* till death. The wide-mouthed phial had been recently used for insects, and, we suppose, the poison from the bruised bay leaves still lingered in it, and became the instrument of Chiton's speedy death. Here are thousands of *Balanidæ*, with their cirri all in motion and gleaming in the sunlight; and there are *Patellæ* in such numbers as scarcely to find footing on a bit of rock which

[1] The Faerie Queene, B. ii., chap. xii.

seems favourite ground. One of the latter, taken suddenly off its guard and detached from the rock, showed around the margin of the shell, into the centre of which it had shrunk, bands of variously shaded blue, which we had not formerly noticed in those univalves, but which looked perfectly lovely as we held it towards the light. When the animal was taken out, and the shell exposed to the atmosphere, the blue lost its brightness. If you wish to get a full view of "head and horns," and mouth of the Patella, take the shell in one hand, a stone moistened with sea-water in the other, and bring them just near enough to let Patella "smell" the bit of rock. It soon moves towards it; and if you gently withdraw the stone, the mollusc will follow, and reveal its fully developed form as it seems about to leave its conical house behind it. We cannot do more than notice that segment of the beautiful *Flustra Truncata*, with its wedge-like leaflet, which has floated in from deep water, or those myriads of *Littorinæ* on the rocks around; for in striving to bring up from the bottom of the pool, into which the tide was now gently pouring its waters, a lump of porphyry, through which a Pholas had bored, and in whose tunnel we found that Serpulæ had begun to build, we discovered a well-grown *Echinus Sphæra* enjoying himself near the lip of the pool, over which the fresh tide was streaming. For a minute he seemed to have got afloat, and to be making an effort to get his mouth uppermost, as if ambitious to take a full look at the sun; for he turned on his side, and exposed the depression of the shell which surrounds the orifice. A strong sunlight struck for an instant on the rounded edge, and revealed to us markings of perfect beauty. Such a glimpse is worth watching for.

> "Then may'st thou see how Nature's work is done,
> How slowly true she lays her colours on."

We quietly dropped the body of the limpet near him, and the position of rest was suddenly resumed. Echinus seemed not so much disturbed, as brought for the moment under a new sensation. Food was near, and the opportunity of gratifying his voracious appetite set him on his guard. Suckers, spines, and pedicillariæ began to show signs of activity, when the limpet floated beyond his "smell."

The suckers of the Echinus are, like those of the star-fishes, the organs of progression, and the spines are believed to assist the animal in capturing its food. The pedicillariæ were long supposed to be independent creatures, living as parasites on the shell of the sea-urchins. Even Müller held this; but they are now proved to be organic appendages of the Echinus. Their true use, however, remains a mystery. Sir John Dalyell was, we believe, among the first, if not the first, to correct the supposi-

tion of Müller. The uncertainty which still obtains as to the proper use of Pedicillariæ indicates what wide fields remain open for research, even in connection with some of our best known animals. It would have added to the interest of our author's pages on Echinus, had he referred particularly to the remarkable discoveries of Professor Müller in connection with the propagation of Echinida.[1] At this point, too, we again miss the discussion of some powerful points of contrast or of comparison, which readily occur to the geologist acquainted with the fossils of the *Lias* and the *Chalk*. Some of these are before us as we write; and it is impossible to look at the fossils in the light of the admirable drawings in Sir John's work, without seeing how very many points of deep interest, both to the man of science and to the student of Natural Theology, are suggested by doing nothing more than setting these remains of past epochs side by side with the portraits even of kindred forms which still live around us. If, for example, we set the Lias *Uraster Gaveyi* (Forbes) alongside of *Asterias Rubens* (Uraster of Agassiz), or the varied *Galerites* and *Micrasters* of the Chalk beside *Echinida*, or *Solaster Grayi* (Forbes) of the Silurian beside *Asterias Papposa*, or *Protaster Sedgwickii* (Forbes) beside any of the Ophiuræ figured by our author, we will at once see, that not only do we bring the first steps in creation near to those most remote—the foundations of the world, as it were, near to the cope-stone of the grand building, over the riches of whose glory Jehovah sitteth enthroned—but also that, while these forms of ancient life differ from the present, those of the Silurian bear evidence of organisation as high and as complicated as those of our own time. The steps by which the sceptic theorist would trace an originating power in uncontrolled physical causes, are shown certainly not to have

[1] "Perhaps the most singular fact in the economy of the Echinida, although something of the same kind is presented by several other species of the class, is the mode of their development from the egg. The egg gives birth to a minute embryo clothed with cilia, by the agency of which it swims freely about in the water. This, which is at first globular, gradually acquires a pyramidal form, and its base presents an opening or mouth, which leads into a sac-like stomach. At the same time, four slender, calcareous rods are formed in the angles of the pyramid, beyond the lower angles of which they project considerably, accompanied by a prolongation of the gelatinous flesh, of which the whole body is composed. They all meet at the summit, and are also united above the middle by cross pieces, and the entire skeleton has been aptly compared to an artist's easel. The little animal still moves by the action of cilia, which occur in the greatest abundance along the course of the calcareous rods. In course of time the young *Echinus* begins to make its appearance, not, however, by the metamorphosis of the larva, but in the form of a small disc in the interior of the dome formed by the flesh of the latter. This increases in size, and gradually acquires a more complex organisation; whilst the curious larval structure, the direct product of the egg, is simultaneously wasted away until it entirely disappears, the only parts of it which enter into the construction of the future sea-urchin being the stomach and œsophagus."—*Carpenter.*

their foundation in the works of God—in the phenomena associated with His purposes of self-manifestation—but in the man's own imagination. The wish that it were so, becomes father to the persuasion that it is.

The true Crustaceans now claim our attention. More than a hundred pages are taken up with descriptions of them in "The Powers of the Creator;" and more than thirty plates, which exhibit great skill both in the drawing and colouring of the figures, are devoted to the elucidation of the text. Our author, as usual, eschews classification,[1] and gives his energies to the description and identification of individuals. Here, as when dealing with Holothuria, Sir John is felt to be thoroughly at home in his work. The subject was a favourite one. He goes minutely into the structure of the Crustaceans. The evidences of the wisdom of God which are seen in the arrangements for the renovation of the shell integument, are pointed out. In the crab, the shell does not grow with the growth of the animal, but is wholly renewed periodically. The references to the process of exuviation are among the most interesting parts of Sir John's work. He points out the rich colouring on many of the species, indicates the character of their favourite habitats, and refers to the disposition of many of them, which seems *crabbed* enough. "They are of a most contentious nature, terrible enemies to each other, and the deadly foes of animals weaker than themselves. Hunger renders them bold and ravenous." But Sir John is clearly at fault, when he tells us that most fatal ravages are committed on the Crustaceans by the Actinia. "Securely rivetted," he says, "to the same spot, while numerous stragglers are roused from their retreats by the flowing tide, its tentacula, treacherously spread abroad, are always ready to seize the unwary victims with irresistible power on simple contact. They crowd around their prey, while the wide expanding orifice of the mouth gradually receives it yet alive. Many of the victims seem completely paralysed, nor even by the slightest struggle attempting to free themselves, even where they seem capable of doing so." Our author has been misled here. We can corroborate, from experiments, the remarks of Lewes,[2] that live crabs have nothing to dread from the Actinia. The remains of dead individuals, often found among the tentacles, have been floated towards them by the tide, and held for a season, that their value might be tested. But we have seen, both in the aquarium and

[1] *Sub-classes and Orders of Crustacea.*—A. Podophthalma: α. *Decapoda*; β. *Stomapoda*. B. Edriophthalma: α. *Amphipoda*; β. *Læmodipoda*; γ. *Isopoda*. Γ. Xyphosura: α. *Xyphosura*. Δ. Entomostraca: α. *Phyllopoda*; β. *Cladocera*; γ. *Ostracoda*; δ. *Copepoda*; ι. *Siphonostoma*; ζ. *Lerneida*. E. Cirrhopoda: α. *Cirrhopoda*.

[2] Seaside Studies, pp. 131–4.

on the shore, even very small live ones creep across Actiniæ, at other times greedy enough, without the slightest effort being made to detain them. On the contrary, their presence seemed to be distasteful.

Many of the crabs are voracious cannibals. "If twelve or twenty specimens of Cancer Menas be committed to the same vessel, their numbers daily diminish; all are killed and devoured by their fellows, until one alone remains victor." But, as a compensation for the great waste of life to which crabs are liable from many quarters, and especially from man, their fecundity is remarkable. "Were the progeny of a single female common crab spared but for two seasons of maturity, their multitude would probably satisfy the demands of 10,000 people." Though they are voracious feeders, some of those which are most so feed in a dainty manner. The harbour crab (*Cancer menas*) will hold the valve of the mussel in one claw, while with the other it primly picks out the contents, and conveys them to its mouth.

We should have liked to have delayed longer among our author's observations on the Crustaceans. They make us acquainted with episodes of lower life peculiarly interesting. But, instead of more remarks on the characteristics of the class generally, let us glance at one individual—*Cancer veterum*, the *Pinnotheres* of Latreille. All are familiar with the story of the hermit crab. Old naturalists believed that, when it took up its abode in the shell of the mollusc—of *Fusus*, *Buccinum*, or lovely *Turritella*—it continued to live on the very best terms with the mollusc itself; but they have been winked at for their credulity, not so much because the fact of the empty shell might have proved the contrary, as that they had ever been so simple as to imagine that a *crab* could be found to tolerate such a companionship. Yet this is actually the case with *Pinnotheres*. He currys favour with the horse mussel (*Mytilus modiolus*); and, having found an entrance into his strong and snug bivalve, his lot forthwith becomes one with that of his noble entertainer. Might it not be *Pinnotheres* which Aristotle had in view, when he spoke of the crab dwelling in friendship with the mollusc? We must be careful not to press so keenly on the observations of old naturalists, as to hold that the creature, which we have called by the names used by them, must necessarily have been the identical species referred to by us. Be this as it may, what but a few years ago might have been set down as a fable, had the observation been found in old books, is now accepted as a fact. But here, again, we are reminded that the discovery may not be so recent after all. *Du Bartas*, to whom we have already alluded, seems to refer to this fact. He is no doubt wrong in his names, while the strong imagination of the poet carries him

beyond the simple observation, and tempts him to throw into his picture certain grotesque touches, which, though they add to its interest, take us further away from the truth :—

"Waves-Mother *Thetis*, though thine arms embrace
The world about, within thine ample space,
A firmer league of friendship is not seen
Than is the *Pearl-fish* and the Prawn betweene.
Both have but one repast, both but one palace,
But one delight, one death, one sorrow, and one solace :
That lodgeth this, and this remunerates
His landlord's kindnes with all needfull Cates.
For while the Pearl-fish, gaping wide, doth glister,
Much fry (allur'd with the bright silver lustre
Of her rich casket) flocks into the *Nacre ;*
Then with a prick the *Prawn* a sign doth mak-her,
That instantly her shining shell she close
(Because the prey worthy the pain, he knowes) ;
Which gladly done, she ev'nly shareth out
The prey betwixt her and her faithful scout."

This is clearly Pinnotheres to which the poet of 1544 refers. In a few happy, quaint touches, he hits off the *true* story of the hermit crab as a different creature :—

"Finding on the shoar
Som handsom shell, whose native lord of late
Was dispossessed by the doom of Fate ;
Therein he enters, and he takes possession
Of th' empty harbour, by the free concession
Of Nature's law—*Who Goods that Owner want,*
Alwaies allots to the first occupant."

The lines are not without interest, as indicating how much more closely the quaint author of "The Week" had observed Nature, than we might have expected to find from men in the days in which he lived. If his Political Economy views run somewhat in the Prudhon line, they are nevertheless graphically true of the habits of the creatures which he calls "Neptune's busie burgers."

Leaving with our author his researches on the sea-shore, and accompanying him to fresh water, he introduces us to the Hydrachnæ, or fresh-water spiders, well-known acquaintances of the field naturalist. We have taken a dip-net of extremely close, thin, white gauze, which for several reasons answers the purpose better than the white saucer recommended by Sir John ; and having dipped it in the waters of a small lake, at a place through which a sluggish stream makes its way among pond-weed, reeds, and equiseta, in a few minutes have netted a number of those tiny sailors. It is, however, extremely difficult to distinguish species, and requires more than the usual amount of

that enthusiastic patience of observation which every student of nature must have as a kind of *vis insita*, in order to make out a tithe of reliable information as to the habits of Hydrachnæ. We recently found a pair of them in a pool so near the Beaumont Water, about six miles above Yetholm, that it must form part of the bed of the river when the Cheviots flood it with their winter and spring rains. We set them down as Hydrachna ferox (*Dalyell*). The wide-mouthed phial in which we put them bulged towards the bottom, and, acting as a not indifferent lens, we had good opportunity of watching the tiny creatures. For a day they seemed to hunt in couple. On the second day, a separation appeared to have taken place by mutual agreement, on the ground, we suppose, of discovered "incompatibility of temper;" for, when they met, one of them turned aside, as if suspicious of his fellow. We were kept from looking at them for two days after this, and then we found number one dead and number two amissing. If we were right in our belief that the species was Hydrachna ferox, the conclusion is, that ferox number two had been devoured by his neighbour number one. Sir John Dalyell states that the prey of H. ferox is H. spinifer. He tells us also, that he had put away for a night, in a phial, sixty water-fleas (Daphnia pulex) with six Hyd. fer., and that in the morning he found each Hydrachna had seized a Daphnia, and was hurrying it along, as if seeking for a secluded place in which to enjoy a feast. On the second morning, scarcely a trace of the Daphniæ was to be found. A keen, voracious, ready appetite those tiny spiders have. Ten of them were shut up with a hundred Daphniæ, and every flea perished in a night. "As it was impossible," says Sir John, "that the assailants required such a quantity of food, it became evident that the victims were the objects of a mere wanton thirst for destruction —a most mischievous feature in the history of these minute carnivorous animals."

In localities similar to those in which the water spiders are to be met with, the student will find another pretty numerous class of animals—the *Hirudines* or leeches—which are not less interesting and not less fierce. Our stagnant pools and sluggish ditches abound in feeders, so utterly undistinguishing in their diet that not only do they rejoice in *all* foreign matter which can claim the slightest flavour of blood, but their own kind is relished as the daintiest dish of all. Look at that *Hirudo stagnalis* which has just been put into the same jar with his first cousin *Hirudo octo-oculata!* The tempting opportunity for a feast has not been missed. He has seized greedily on cousin Octo-oculata, but, in the effort to swallow his more diminutive friend, he has nearly been suffocated. He is writhing as if Octo-oculata had awakened

in time to the consciousness of his danger, and had, in self-defence, fastened on the gullet of his unscrupulous companion, which now seems more than anxious to get quit of his half-swallowed prey. Some of the Hirudines have peculiar tastes. One taken in a marsh at Abercorn, in the neighbourhood of Sir John's seat, had a great affection for white fish. Flesh, juicy with blood, was esteemed as nothing when presented with the fish. But the queen of voracious leeches is *Hirudo sanguisuga* —the horse-leech. She has still the character for greed, ferocity, and discontent assigned to her nearly 3000 years ago, when it was written—"The horse-leech hath two daughters, crying, Give, give." (Prov. xxx. 15.) Feed her and her daughters lavishly as you may—cast to them fish, flesh, fowl, living or dead, fresh or putrid—they eat on and "ask for more." But passing from sluggish waters, by whose side *carex* and *equisetum* and water *ranunculus* grow luxuriantly, and on whose surface the pond-weed floats in sunshine and in shadow, and straying by those which are brighter and purer and more in motion, we meet with the well-known hair worm—*Gordius aquaticus*—associated with the development and physical influence theories of childhood! As might be expected, such theories shoot far a-head of those kindred imaginations of mature years, which have led many to make sad havoc of the ways and works of the great Creator. Many a thoughtful country school-boy will, even after a lesson from Chambers' well-written "Scientific Course," or from Paterson's able "Zoology for Schools," stand boldly up among his companions for the twofold metamorphosis of the *hair worm*—its change, 1*st*, from a black horse-hair into the "hair eel;" and 2*d*, from the hair eel to those true eels which lie farther down the stream, or more deeply down in the mud of the mill-pond. We have seen the horse-hair measured, and in early winter committed to the mill-dam, to be carried to the point at which it again meets the main stream, that it might there find a matrix in which to pass the winter, under the strong influences of transforming physical causes, that when sought for in spring the hair eel might be ready to corroborate the profound theories of the juvenile experimentalist. And when the buds began to break on the hedges, the willow to hang out its gracefully drooping catkins in the sunlight, and the yellow primroses to look out from the green grass "by the river's brim," we have seen Gordius aquaticus sought for, and, of course, caught! Measured once more, it was found that the rounding of the body accounted for the difference of length between the long horse-hair and the shorter Gordius. What had been gained in span had been lost in line! Now we hold that not one link is awanting here which development men demand. Others might, no doubt, press for

the testimony of two witnesses to the *mode* of the metamorphosis, or at least to the observation of the *fact* of it; but these are unreasonable sceptics! Development philosophers ask no such questions. We were reminded of Gordius aquaticus some years ago, when listening to the attempts of a Romish priest to make out a case for the existence of miraculous gifts still in the bosom of Mother Church. He told his not very intelligent-looking Celtic audience, that the power to work miracles had not passed away, and gave an illustrative case. A certain saint, wandering in a neglected district in Italy, came to a place where two populous villages were separated by a hill. One church, it seemed to him, might do for both, if only the hill were taken out of the way. No sooner thought than done. "And," said the reverend logician, "Protestants may doubt this; but what will they say when I tell them, that the church stands there at this moment to testify to the fact?" The *fact* seemed at first irresistible to the credulous audience, but its force was marred when a young "sceptical Protestant" behind us put the unexpected question aloud, "But was the hill ever there?"

The transition from the consideration of *Vermes* to that of *Planaria* is easy and natural. So, too, from *Planaria* to *Nais*, to marine *Nereis*, to *Terebella*, and to *Amphitrite*. To these our author devotes a great part of volume second. In his mode of dealing with them, but especially with Amphitrite, we are led again to admire his great skill as an observer, and to notice to how great an extent his labours have been used by succeeding naturalists—often, we regret to add, without acknowledgment. The concluding sixty pages, and ten illustrative plates, are devoted to certain gasteropods, as *Aplysia* (the sea-horse), *Doris* (sea-lemon), *Tritonia*, *Eolis*, etc. We are not, however, to look for anything like the same completeness here, in the method of treatment, as that which meets us in the Ray Society Monograph on the *Nudibranchiata*[1]—a monograph which has left nothing more to be done by British naturalists than to make additions to the number of species therein described. There are, however, one or two points, suggested by Sir John's descriptions, which call for remark. He was the first to trace with some accuracy the habits and reproductive power of *Tritonia Hombergii*, the largest of the Tritons. After much patient observation and experiment, he discovered that it feeds on the zoophyte, Lobularia. We owe also to him the identification of the Nautiline as the young Doris. This led him to the hypothesis, that there might be many forms of lower animal life, which passed through stages of development at each of which they might assume shapes so very unlike their parents, as to warrant the belief that

[1] By Alder and Hancock.

they constitute well-marked, full-formed, and distinct species. This hypothesis has proved a fruitful one both to Natural Science and to Natural Theology. It is indeed true, that, as to the latter, the full testimony to the wisdom of God has not been educed. But materials are accumulating. Owen, Huxley, Forbes, Dalyell, etc., have already done much. The first two are still at work, and are being ably seconded by men like Gosse, Lewes, Strethill, Wight, etc. A Paley or a Chalmers is now needed, in order to give true and full apologetic value to their discoveries.

We must pass over the peculiarly valuable observations on the Cuttle-fish (*Sepia*), on the Testacean Univalves and Bivalves, on Serpula Contorta, Balanus, the Sponges, and his notice of Lissotriton Punctatus—the *Newt* or *Water Eft*. A word, however, as to the *Newt*. If we are to credit some recent anatomists, there must be something far from safe under the skin of Lissotriton. Buckland tells us, that when he was dissecting one, such an offensive odour was emitted on dividing the skin from the abdomen, that he was obliged, from a feeling of faintness, to relinquish his task and lie down for a few minutes; and a writer in "Blackwood," for August 1858, corroborates Buckland's experience.

We have thus endeavoured to give our readers a general view of the ground occupied by the author of "The Rare and Remarkable Animals of Scotland," in his last important work. And we have, at one point and another, filled in our outline sketches with information gathered from our own, or from the observation of other naturalists. It was not meet that one who had been such an able and successful student and pioneer in departments of Zoology with which we are now growing rapidly familiar, should pass from among us without a notice in this Journal. The lesson of his life is, withal, an important one for young naturalists. He obtained success and a name as the rewards of untiring patience, perseverance, and careful personal observation in his favourite pursuits. In the spirit of a true philosophy, he was ever mindful of his own ignorance and suspicious of generalisations, at the base of which he found vague hypothesis stronger than the fruits of experience. The meanest and humblest forms of life, equally with the highest and noblest, ever suggested to him the wisdom, power, and goodness of God. Thus every contribution which he made to Natural Science, was rendered in the spirit of one to whom Creation was interesting only in so far as it brought his thoughts into sympathy with such thoughts of the Great Creator as are clearly revealed in it.

ART. VI.—1. *Report from the Select Committee on Decimal Coinage, together with Minutes of Evidence, etc.* Parliamentary Blue Book, 1853.

2. *Preliminary Report of the Decimal Coinage Commissioners.* 1857.

3. *Questions communicated by Lord Overstone to the Decimal Coinage Commissioners, with Answers.* 1857.

WHEN an Englishman travels for the first time amongst a people whose habits differ slightly from those he has left behind, he is apt to find fault with everything, simply from the fact that he has been accustomed to something different. After a while, he learns to accommodate himself to his new position. His temporary irritation yields to the complacency of self-satisfaction, as he looks benevolently around him on those who, he never doubts, are in every way less favoured than his own countrymen. Perfectly convinced that "they order these matters better *at home*," he bears with discomforts, and congratulates himself on his interest in Old England. Seen from a foreign shore, home institutions become perfect. Everything around him suffers from contrast with what he has left—men, manners, money: yes, even money. With his hands thrust deep into his pockets, where they delight to dwell, he turns over the florins, or the dollars, or the francs, which he finds there, with a feeling akin to pity at their inferiority to his more familiar shillings. When he lands on the quay at Folkstone, after a three months' tour, the sight of the head of Old King George on the penny-piece, or of that of his beloved Queen on the sovereign, makes his breast swell out again, and helps him to shake off the qualms of the passage. No one could persuade him that he has left behind him the perfection of coinage, any more than that he has bid adieu to the lands of freedom. He brings back from his travels a hearty faith and an undoubting confidence in the institutions of his country. Happy man! But is he not all the while labouring under a grievous delusion, blinded by prejudice? Suffering he certainly is not, but that proves nothing; for it has been wisely and mercifully ordered, that certain mental infirmities carry with them a soothing balm. He believes himself blest, and his belief is his blessing. Still, it is not the less true, that if he has been all along deceiving himself, he is in a false position, and is happy only by mistake. Such a state of things cannot last for ever. Some officious neighbour or some untoward circumstance will at last open his eyes, and the happiness which he has enjoyed through ignorance, will be all forgotten in the misery of his revealed position.

But what has all this to do with the subject of decimal coinage? We will try to answer the question. From time immemorial, the people of this country have carried on their transactions by means of a system of monies of a mixed character, and not constructed on one uniform principle. They have, notwithstanding, contrived to get along pretty well, and have generally flattered themselves into believing that theirs was the very best system that could have been devised. But, in the midst of this dream of perfection, they have got a great shake. Their position has been made uncomfortable to them, and they are gradually beginning to stretch themselves and look about them. Some thirty years ago, a faint cry was heard urging them to awake to the fact that all Europe, and America too, are in advance of them in that essential element of happiness (alas! that it should be so), money; but, hardly condescending to lift their head, they quietly turned themselves on their side and slumbered on. Within the last few years, however, the echo of the cry has been taken up in high places. The merchants and bankers—a vast multitude—are thoroughly awake. Agitation has assumed an organised form. The old method of reckoning by pounds, shillings, and pence, is at the bar convicted of the crime of having existed in the slow days of stage-coaches, and waiting its sentence of banishment with them to the remote, thinly peopled corners of the island. It is certainly at this moment not improbable that the first information which the mass of the people may obtain on the subject of their coinage, will be the announcement of the fact, that their children must no longer be taught to say, "4 farthings make a penny, 12 pence make a shilling, 20 shillings make a pound," because it will be no longer true.

We trust we shall be excused for discussing a question of an uninviting character, when it shall appear that it threatens to become shortly a question of universal interest. The history of the subject is briefly this:—In 1824, Sir John Wrottesley introduced the matter into the House of Commons. He recommended that, in place of our present coinage of account, a system should be adopted consisting of pounds, double shillings, and farthings—the last diminished by four per cent. This motion was opposed by the Master of the Mint, on the ground of the inconvenience which might attend its adoption. Once broached, however, the discussion was renewed from time to time by various writers. The work which appears to have been mainly instrumental in directing public attention to the subject, was a small volume by General Pasley in 1834, in which the discrepancies that exist in different parts of the country amongst weights and measures were forcibly pointed out, and the necessity for a decimal system, both of measure and of money, was insisted on. In consequence

of the destruction of the standards of weight and measure by the burning of the Houses of Parliament, Commissioners were appointed in May 1838, to whom the question of their restoration was referred by Lord Monteagle, then Chancellor of the Exchequer. These Commissioners gave in their Report on the 21st of December 1841. Their instructions had reference only to the restoration of the standard of weight and measure; but as the question of decimal division necessarily came under their notice, they took the opportunity of inviting the attention of the Government "to the advantage of establishing in this country a decimal system of coinage." They expressed their opinion, that "no single change which it is in the power of a government to effect in our monetary system would be felt by all classes as equally beneficial with this, when the temporary inconveniences attending the change had passed away." They pointed out the facility with which a new coin with a distinctive name—a two-shilling piece—might be interposed between the pound and the shilling; whilst the farthing, which now passes as the nine hundred and sixtieth part of a pound, might be considered as the thousandth part of that unit, and a new coin might be established, equal in value to the hundredth part of a pound. A suggestion of this kind coming from such men as the Astronomer Royal, the President of the Royal Society, Sir John F. W. Herschel, and others—men of the greatest eminence in the mathematical and physical sciences—could not fail to excite attention. The matter was taken up by Professor De Morgan, whose eminence as a mathematician gives weight to his opinions, whilst his logical acumen and playful humour enable him to place them before the public in an attractive form. Various papers by him were published in the "British Almanac" from 1851 downwards. These papers will be consulted by every one who desires to obtain a full knowledge of the history of the subject.

A second Commission on Weights and Measures, appointed in 1843, referred to and confirmed the recommendations of the former Commission, relative to the coinage. In April 1847, the question was again brought before Parliament in a motion by Sir John Bowring, for an address to the Crown in favour of the issue of silver pieces, of the values respectively of one-tenth and one-hundredth part of a pound, avowedly as a step to the complete introduction of a decimal system. The Chancellor of the Exchequer, Sir Charles Wood, had no objection to the issue of one of the coins, the one-tenth part of the pound; and the motion was withdrawn on the understanding that it should be issued. The result has been the introduction of the florin. In 1853, the second Commission on Weights and Measures addressed a letter to Mr Gladstone, then Chancellor of

the Exchequer, in which they stated that "they felt it their duty to represent that they were strongly impressed with the advantages of a decimal system of coinage; and that, having learned that an immediate coinage of copper to a considerable amount was in contemplation, they made an urgent request that, before specific steps were taken in reference to the proposed coinage, the decimal system might be carefully considered, trusting that the result would be that the Government would decide on issuing coins related to the millesimal subdivision of the pound."

In accordance with the views expressed in this letter, an inquiry was made in the House of Commons as to the intentions of the Government. This inquiry seems to have had no effect, so far as the issue of new copper coin was concerned; but it led, on the 12th of April 1853, to the appointment of a Committee, to take into consideration and report to the House the practicability, and advantages, or otherwise, that would arise from adopting a decimal system of coinage. The witnesses examined by this Committee, twenty-five in number, were unanimous in favour of a decimal coinage; and, with the exception of Mr Headlam, M.P. for Newcastle, were all in favour of the scheme recommended by the Commission on Weights and Measures, already referred to, which may be termed the pound and mil scheme. Mr Headlam expressed his conviction, that the scheme is impracticable; and although not warmly advocating any change, propounded a scheme based on the existing farthing.

The Committee reported to the House on the 1st of August 1853. The substance of their Report is as follows:—1. The evidence is clear and decided against the present system, showing, amongst other things, that it entails a vast amount of unnecessary labour and great liability to error; that it renders accounts needlessly complicated; and that it confuses questions of foreign exchanges. 2. On the other hand, the concurrent testimony of the various witnesses is to the effect, that the adoption of a decimal system would lead to greater accuracy, would simplify accounts, would greatly diminish the labour of calculations, and would facilitate the comparison between the coinage of this country and that of others. The resulting benefits to society would be the economy of skilled labour, and the advance of school education. 3. The Committee, having well weighed the comparative merits of the existing system of coinage and the decimal system, and the obstacles which must be met with in passing from the one to the other, desired to record their conviction, that these obstacles are not of such a nature as to create any doubt of the expediency of introducing that system, so soon as the requisite preparation shall have been made for the purpose, by means of cautious but decisive action

on the part of the Government. 4. They had no hesitation in recommending the pound and mil system, retaining the present sovereign, the half-sovereign, florin, and shilling; and suggesting an alteration of four per cent. in the present farthing, to convert that coin into the lowest step of the decimal scale which it is necessary to represent by means of an actual coin, viz., the thousandth of a pound. To this lowest denomination the Committee proposed to give the name of mil. Further, the Committee recommended the withdrawal of the half-crown, and the threepenny and fourpenny pieces, which are inconsistent with the decimal scale, and the eventual addition to the coinage of two silver coins of 10 and 20 mils, and three copper coins of 1, 2, and 5 mils. 5. As to the practicability of introducing the decimal system, the obstacles appeared to the Committee to be twofold in their nature. The first arises from the difficulty which is always found to exist in inducing the mass of the population to depart from standards with which they are familiar, and from modes of calculation, to the defects of which usage has reconciled them. The second arises from the necessity of rearranging the terms of all pecuniary obligations expressed in those coins which, in the event of a change in our monetary system, would cease to have legal currency. Relative to the first of these obstacles, the Committee examined several witnesses, who have extensive dealings with the poor, who gave it as their opinion, that no prejudice would be raised in the minds of the people against this slight decrease of four per cent. in the value of the farthing, provided they were made to understand that they could, on the other hand, get twenty-five of the new coin for sixpence, where they now get twenty-four; and further, that competition invariably causes the quantities of the articles sold to accommodate themselves to prices without difficulty. Relative to the second obstacle, the Committee argue that the change of coinage was easily effected in the United States, and in Ireland. The greatest difficulty lies in the substitution of a new copper coin in place of the penny, and the consequent adjustment of obligations expressed in that coin, such as postage, newspaper, and receipt stamps, certain customs' duties, etc.; in addition to the class of cases in which private interests are concerned, such as railway, bridge, ferry, and road tolls. The Committee offer several practical suggestions for the arrangement of these matters, and conclude by expressing their belief, that the necessary inconvenience attending a transition state will be far more than compensated by the great and permanent benefits which the change will confer upon the public of this country, and of which the advantages will be participated in to a still greater extent by future generations.

The publication of this Report thoroughly awakened the public to the importance of the question. In June 1854, an Association was formed, under the name of the *Decimal Association*, with the object of promoting the adoption of the decimal system in money, weights, and measures. A deputation from this body waited on Mr Gladstone, then Chancellor of the Exchequer, who, whilst expressing his own opinion that a decimal system of coinage would be of immense advantage in monetary transactions, frankly owned he was by no means convinced that we can get rid of the penny. He felt that we are not ripe for a decisive measure on the subject, and thought that the aid of Parliament should not be invoked until we are ready for the change. On the 12th of June 1855, Mr William Brown, M.P. for South Lancashire, who has throughout taken a prominent and active part in the discussion, moved in the House, "That the further extension of the system initiated by the florin will be of great public advantage." This motion having been carried after a full discussion, virtually condemns our existing coinage. The next step was the appointment of a Royal Commission, to consider "how far it may be practicable and advisable to introduce the principle of decimal division into the coinage of the United Kingdom." That Commission, having before them the Parliamentary Report, embodying evidence which so unanimously recommended the adoption of a decimal system, resolved to select their first witnesses from amongst those who disapproved of the scheme. They accordingly proceeded to call before them those persons who were understood, by their publications or otherwise, to be the most prominent and best informed of the opponents of the recommendations of the Parliamentary Committee, and who were either supporters of the present system of coinage, or advocates of the scheme known as the penny or tenpenny scheme. They further set to work to collect together a varied mass of information bearing on the question, which, together with the minutes of evidence of the selected witnesses, they presented to Her Majesty on the 4th of April 1857. The Commission consisted of Lord Monteagle, Lord Overstone, and Mr Hubbard. In their Preliminary Report, just referred to, they stated that a series of questions had been prepared by one of their number, Lord Overstone, described by their author as being "drawn up with a view of bringing under distinct notice and examination some of the advantages of the present system of coinage, and some of the principal difficulties and objections which had been suggested with respect to the introduction of a system of decimal coinage." These questions were put into the hands of various men of science or of business, from whom speedy answers were requested. Answers were accordingly obtained, and those from

twenty-one gentlemen were subsequently printed by the Commissioners. Many of them were also printed and circulated by the Decimal Association, as a reply to the *arguments* involved in Lord Overstone's questions.

Here the matter rests for the present; but we are satisfied that it cannot rest long. The importance of the movement, and the vastness of the change which it contemplates, have, within the last three years, excited attention in every quarter to this previously unpopular subject. Dr Gray, of the British Museum, enumerates nearly two hundred publications on the coinage, including newspaper articles, during the year 1855. We shall endeavour to condense into as small a compass as possible the arguments on which is based the conclusion that a decimal coinage is needed, and an exposition of the means by which it is proposed to be introduced. Having done this, we will exhibit some of the views of those who object to the Parliamentary scheme, either on the ground of the difficulties and dangers which would attend any alteration, or on the ground of the objectionable nature of the particular measure proposed. We will next contrast the existing coinage with its opponent; and finally, exhibit some arguments bearing on the question of the acceptance of a decimal coinage by the mass of the people.

I. The arguments used by the decimalists are the following:—

First, The propriety of introducing uniformity by causing the representation of monies to be conformable to that of abstract numbers. The basis of our numeral system is self-indication by means of local value, combined with "ascent by tens." Now, the same principle, it is argued, is equally applicable to money—will afford like facilities when so applied—and ought, therefore, to be adopted. The force of this argument, so far as representation is concerned, is due to the hypothesis, that the mind will rest on the lowest unit for support; so that 63,587 mils will be read sixty-three thousand five hundred and eighty-seven mils, just as the corresponding abstract number would be read. In other words, it involves the condition that reference shall be made to only one money of account, or one unit of value. If it should appear that this hypothesis is altogether untenable, the advantages promised by the decimal scale, as an element in a representative system, will be much curtailed. And that such is the fact, will be clear after a little reflection. Will men agree to think and speak in terms of farthings? Nay, even Professor De Morgan, the ablest and staunchest advocate of the decimal coinage, does not propose to limit written sums to multiples of the mil, or to abandon the lines of separation which at present divide the pounds from the shillings, and these again from the

pence. We find him writing thus—L.63, 5fl. 8c. 7m. Those who advocate the decimal principle on the ground that "the numerical is the primary element in a system of coinage, and the decimal is therefore involved in it of necessity, and consequently, when acting uniformly, must be more simple and easy to be comprehended," are ready to admit that the defect in our present system on this ground is rather theoretical than practical (H. W. Chisholm, Esq., Answer to Lord Overstone's Question 1). We are consequently to look to something beyond mere representation when we inquire into the advantages of conforming the monetary to the numeral system. The advocates of this conformity point out—

Secondly, The appropriateness of decimal notation to account-keeping, which consists in writing down figures and summing them up. We are accustomed to regard our money columns as three only; but it is obvious that they are really five, because both the shillings and the pence require a separate column for the tens' place. It is argued, then, that the proposed system will have the double advantage of brevity and uniformity of representation. Moreover, as the irregularity of the tens' place is said to be a constant source of error, the new system will, it is believed, add accuracy to simplicity and facility. In France and America there are but two columns; and as the second consists of only two figures, both of which are always written down, the chance of error in the smaller monies is much diminished. So important is this simplification, that Mr Meeking has been ungallant enough to give what he terms a proof of the decimal coinage being *very easy*, that in France, women keep a great portion of the books.

The argument here exhibited is not easily dealt with. Its merits can only be determined by experience. For our own parts, we have always regarded division into columns as a simplification; and, at any rate, we can state, from intimate acquaintance, that boys will write down and add up sums to the extent of L.20 or so, with shillings and pence, who could not for their lives write down from dictation, and add up, corresponding whole numbers involving tens of thousands.

Thirdly, A decimal system is supposed to afford facilities for the small calculations which accompany payments in retail transactions. The Astronomer Royal gives this example:—"In adding mentally, or on paper, 1s. 9d. to 2s. 7d., when I have added 9d. to 7d., and formed 16d., I have the trouble of converting the 16d. into 1s. 4d.,—which trouble I ought not to have in a well-arranged coinage." On the other hand, it must be remembered, as Lord Overstone has pointed out, that in the retail transactions of the shop or market, divisions into halves, quar-

ters, etc., is more convenient, and more in unison with the natural habits of mankind, than divisions into tenths. To this matter we shall return hereafter.

Fourthly, One of the greatest advantages promised by the decimal system, is the readiness with which it enters along with the numeral system into the computations that accompany account-keeping, and into those more abstruse calculations which are the work of the actuary or the financier.

Sir Charles Pasley says, truly—"The great inconvenience is, that in accounts you have to multiply. There are many complex accounts, in which you have first to reduce pounds into shillings, pence, and farthings, and afterwards to reduce them back again by division into pounds, which is exceedingly inconvenient. I believe the inconvenience is acknowledged by every person, except those who are in the habit of working out accounts daily by routine." And Sir John Herschel argues in favour of decimilisation thus:—"The Ready Reckoner would be dispensed with, or its place supplied by a general multiplication table of comparatively small extent; and possibly a table of logarithms might occasionally be seen where now such a thing is never dreamt of. All statistical, revenue, and general commercial computations would be facilitated, and the acquisition of clear views of the mutual relations of prices, imports and exports, duties, taxes, etc., very greatly so, by disencumbering the elements of computation of the infinite complexity of denominations under which they are now presented. The introduction of the decimal system would get rid also of the whole of that complexity which consists in what we call rule of three, sums of complicated denominations. In these calculations, an immensity of labour would be saved, and a great deal of clerkship in the adding up of columns; and the quantities of mistakes that arise with those who are not from their youth up accustomed to that work, is very great." On these grounds, a decimal coinage has been justly termed a "labour-saving machine." Professor De Morgan goes further, and argues that the complication of our present system not only adds to the labour of what is actually done, and must be done, but forms a barrier to prevent the performance of much that ought to be done, but is not. He says, that the money which changes hands is not that which would change hands if we had a more simple system. He instances the income tax of 7d. in the pound, which, he argues, must have been the nearest approximation in the mind of the minister to three per cent.; so that the Government abandoned about L.30,000 in every million of taxes, by taking 7d. in the pound instead of three per cent. But does not Professor De Morgan, in this example, lose sight of the principle on which he so much

insists, that dealers accommodate the prices of their commodities to the monies now in use? It is to be presumed that the Chancellor of the Exchequer had satisfied himself that 7d. in the pound was sufficient; and if so, where was the loss or inconvenience? Another example given by Professor De Morgan is the custom of substituting interest for discount. For instance, a bill for L.100 due a year hence, at five per cent., is discounted at L.95, instead of L.95, 4s. 9d. We confess it appears to us that Professor De Morgan has not been so happy in the selection of this example as in that of the income tax. The connection between interest on the sum paid, and the sum itself, which is unknown, is the real difficulty, and it has nothing whatever to do with the monetary system. Is the division of L.10,000 by 105 so difficult, that a dealer sacrifices 4s. 9d. rather than perform it? If this be so, he will continue the sacrifice under any system whatever. We believe the truth to be, that custom has sanctioned a mode of dealing, the principle of which is intelligible to the meanest capacity. Five per cent. strikes off five pounds in the hundred, and there is an end of it, spite of the *word* discount.

Fifthly, It is argued that the want of decimalisation is a check on the education of the humbler classes. Professor De Morgan says:—"Upon the education of the poor it is a tax of a tremendous magnitude; the calculations of the poor are far more difficult than those of the rich, and also more numerous." He is of opinion that, taking all the schools of the country, commercial as well as classical, and considering in how many of them reading, writing, and arithmetic form the great mass of what is taught, he is entitled to regard arithmetic as occupying the fifth part in time of the primary education of the country; and that of this time one-fourth part is thrown away by the present system of coinage, weights, and measures. Thus the loss of time in education, before proceeding to college or to business, is five per cent. He states again, that besides the loss of time, the student sustains a further injury by the distraction of his attention. As soon as he has mastered the primary rules of addition, subtraction, multiplication, and division, his attention is called off to another system, or rather complication of systems, which causes him to forget what he has learned, and makes the subsequent use of arithmetic more difficult than is necessary.

We wish to express as distinctly as possible our firm conviction, that Professor De Morgan is under a delusion in respect to the influence of decimal arithmetic on education. We are disposed to doubt whether a child ever begins to understand what he is doing until the tangible form in which the exchanges are made under the compound rules throws some light on the subject. In

all American treatises on arithmetic which we have seen, abundance of examples are given in pounds, shillings, and pence; and many teachers endeavour to make their pupils understand the meaning of "carrying and borrowing" by illustrations drawn from another scale than the decimal. We are willing to admit that, so far as mere acquisition is concerned, considerable saving of time would be effected by a *complete* decimalisation; but we cannot admit that education would be thereby facilitated. We speak from some knowledge of the humblest schools in Scotland, and can record with pleasure the fact, that they aim at something more than the imparting of information: they try to lead the child to discover his own ignorance, and to correct it. And the science of arithmetic is one of the very best exercises of which the schoolmaster can avail himself. The effect which its mixed character produces on the lad's mind, in teaching him to think before he acts, if it goes no deeper, certainly does enable him to master the science itself. Is it not true that the English country schools, deficient as they were in our grandfathers' days, generally contrived to produce good arithmeticians? Professor De Morgan himself admits that "the English have always shown a greater aptitude for arithmetic than our neighbours the French." And he adds further, "I think the English have seized the decimal notion better than their neighbours."—(*Parliamentary Report*, 757, 759.) May not much of this superiority be due to the educating character of our monetary system?—to the constant appeal to value and change of value which it enforces?—whilst decimal arithmetic is apt to be carried on by mere unintelligent writing down.

Sixthly, The Parliamentary Committee, in their Report (1853), specify, as one of the inconveniences of the existing system, that it confuses questions of foreign exchanges; whereas the decimal system, "by facilitating the comparison between the coinage of this country and other countries that have adopted the decimal system, would tend to the convenience of all those who are engaged in exchange operations, of travellers and others." Much of the evidence on which this statement is made, we confess ourselves utterly unable to comprehend. For example, James Lawrie, Esq., author of the "Universal Exchange Tables," states the following case:—"France gives us 25 francs and $22\frac{1}{2}$ centimes, more or less, for our pound sterling. This exchange is equivalent to $39\frac{6}{10}$ mils per franc. If we had a decimal money, we could probably purchase the franc at $39\frac{1}{2}$ mils, and have, in all cases, the turn of exchange in our favour." The logic of this is possibly quite clear to a financier, but to us it is very much the reverse. It seems to read thus:—If we had a decimal system, the franc would be valued at 39·6 mils; but probably we

should not be asked to deal decimally, but be allowed to take the nearest *vulgar* fraction, $39\frac{1}{2}$, and thus effect a gain of $\frac{1}{10}$ of a mil. The same gentleman prepared a table for the Committee, in which he appears to have proved that, under a decimal system, we shall effect a gain of $7\frac{1}{4}$d. in the purchase of 1000 French francs. The reason being, as before (at least we see no other reason), that when you have a decimal system you need not use it, but may approximate by the nearest vulgar fraction; for here he takes $39\frac{5}{8}$ cents as the value of the French franc—the data being the same as in the previous case, where he made it 39·6. We confess ourselves also utterly unable to understand why the decimal of a pound should be different from the decimal of a *decimal pound*. If it arises from a custom of calculators to stop at a certain number of decimal places, we suppose it will operate in both directions. The French will have their turn. As the traveller and the lion jogged on together, the former pointed out to his companion the sculpture of a man bestriding a lion, whereupon the other remarked, "When we are the sculptors we make the lion bestride the man." Mr Lawrie's other example, relative to Holland, presents precisely the same anomaly. Are we to believe that an interminable decimal is preferable to a whole number?

What, then, are the advantages of a decimal notation, in an international point of view, except that it facilitates certain computations, we really do not know. Since the publication of the Report, however, these advantages have doubtless assumed a new and definite form in the minds of many persons. During the *Exposition Universelle* in Paris, in 1855, a society was formed, of which the British branch calls itself the International Association. The objects which this Association contemplates, are the bringing about of absolute uniformity of weights and measures throughout Europe, or, if possible, throughout the whole world, and of all possible uniformity in coins. We do not know how the gentlemen who constitute this Association propose to effect their purpose, nor do we know whether any of the witnesses examined under the Royal Commission are members of the Association. The views entertained by those witnesses appear to us to be utterly irreconcileable amongst themselves. At any rate, as the objects proposed by the Association form no part of the Parliamentary scheme, we shall pass on to other matters.

II. Admitting, then, that a decimal system offers certain advantages, the next consideration is as to its introduction. We postpone discussing the question of the propriety or desirableness of change, because our readers will be in a better position to appreciate that discussion when they shall have a clear apprehen-

sion of what the change is which is contemplated, and of the mode by which it is proposed to be brought about. And at the outset, we desire to call attention to the distinction between a change in the coinage and a change in the accounts of the country. It must be remembered that gold is the standard of money, or, strictly speaking, alone is money in this country. Prior to 1816, silver was a legal tender; but from that date it has ceased to be so, except to the extent of forty shillings. As to copper, it is, of course, only a make-weight. The silver and copper coins bear a nominal value, as compared with the sovereign, which is greater than the value of the metal of which they are composed. These coins having, therefore, the character of tokens, it is conceivable that the values attached to them may at any time be altered by Parliament. This being admitted, it is clear that if the copper portion of the coinage, and the silver smaller than the sixpence, be lowered four per cent., the whole change to a decimal system is effected, *so far as accounts are concerned.* The florin then becomes the unit in the second column, and the shilling of fifty farthings, instead of forty-eight, becomes the half-florin. Theoretically, this is a very simple matter, whatever the practical difficulties may be. And we have thought it our duty to place it in the front of our discussion, as an index to what is to follow. It may be called the rudimentary form of the pound and mil scheme. But there is another scheme, commencing at the other extremity of the existing coinage, and supported by arguments derived from totally different considerations from those which have influenced the advocates of its rival. This scheme proposes to take the penny as its unit, and to reckon in tens and tenths of pennies. It has been called the penny or tenpenny scheme.

We proceed now to compare the merits of these two rival schemes. It may suffice barely to mention the fact, that there are in reality no less than eleven distinct proposals[1] for effecting the desired end, based respectively on the guinea, the pound, the half-sovereign, the eight shillings, the crown, the double florin, the half-crown, the twenty-penny, the penny, the halfpenny, and

[1] There is also the duodecimal system—12 pence make a shilling, 12 shillings make a pound. Duodecimals have always found favour with pure theorists: they found favour also, it would seem, with Napoleon, who certainly was not a pure theorist. Professor Playfair, in his Review of Méchain and Delambre's Arc of the Meridian (*Edinburgh Review*, 1807), censures the Academicians, because, when they were under no restraint from custom or the prejudices of the people, when the Revolution had shaken everything from its seat, they resolved to restore and complete the decimal scale, instead of adopting the duodecimal. It may perhaps serve as a check to those who think with Playfair, to learn that the Academicians acted advisedly. Mr Alexander, the friend of Mr Quincey Adams, confirms the statement of the latter, that the question of the duodecimalisation of arithmetic was discussed and rejected; and adds, that this occurred at a meeting, which comprised such names as Lavoisier, Borda, Delambre, Tralles, Van Swinden, and Harsler.

the farthing. Of these, however, all but two are virtually defunct, and it would be mere waste of time to give them even a passing notice. The two rival schemes, then, are the pound and mil scheme, and the penny or tenpenny scheme—the former supported by such men as Professor De Morgan, the Astronomer Royal, Sir John Herschel, etc.; the latter, by Dr Gray, Mr Rathbone, etc.

The pound and mil scheme was recommended for adoption by the Parliamentary Committee in 1853. We cannot exhibit its features better than in their own words:—"The first question to be decided is, What shall be the unit of the new system of coinage? and your Committee have no hesitation in recommending the present pound sterling. Considering that the pound is the present standard, and therefore associated with all our ideas of money value, and that it is the basis on which all our exchange transactions with the whole world rest, it appears to your Committee that any alteration of it would lead to infinite complication and embarrassment in our commercial dealings; in addition to which, it fortunately happens that its retention would afford the means of introducing the decimal system with the minimum of change. Its tenth part already exists in the shape of the florin or two-shilling piece; while an alteration of four per cent. in the present farthing will serve to convert that coin into the lowest step of the decimal scale which it is necessary to represent by means of an actual coin, viz., the thousandth part of a pound. To this lowest denomination, your Committee purpose, in order to mark its relation to the unit of value, to give the name of mil. The addition of a coin, to be called a cent, of the value of 10 mils, and equal to the hundredth part of the pound, or the tenth part of the florin, would serve to complete the list of coins necessary to represent the monies of account, which would accordingly be pounds, florins, cents, and mils."

This statement embodies, substantially, the views of the whole mass of supporters of the pound and mil system. They have, at least, the merit of being harmonious, and they all appear to be really satisfied of the extreme desirableness of the change they propose. The only questions which remain behind are—How shall the new system be introduced? And what steps will be necessary on the part of the Government in regard to the removal of certain obstacles? Relative to the former, the ideas entertained by Professor De Morgan in 1853, have certainly the merit of originality. He says: "There is a question in my mind as to which of two plans should be taken—a gradual introduction, or an introduction at one step. If the new system be introduced gradually, the process would be, without saying a word about new coinage or the decimal system, merely to call in

the half-crowns and issue the florins. When that is done, the process would be to coin a coin of 2½d.,—that is, of the present coinage, without any reference to decimal coinage, or to any alteration of our system. If a coin of 2½d. were brought into use—supposing that such a coin could be easily brought into use, of which I am no judge—with the same advantage as the 3d. and 4d., the first thing that would strike the people would be, that five of those would make 1s. and ½d., and that ten of them would make a florin and 1d. They would soon learn how to give and take change, because nothing is easier than to remember that five of the new coins make 1s. 0½d. People would soon come to the idea that this odd ½d. in the 1s., and odd 1d. in the florin, was a nuisance, and it might then be abolished as a nuisance, and the 1s. brought to the five new coins, and the florin to the ten new coins; and that would be the gradual way of introducing the system, never mentioning the decimal system, nor giving the people a notion of a change, until a proclamation should be issued to strike off the ½d. on the shilling, and the 1d. on the florin. That would be a gradual introduction into legal use of the florin, cent, mil, or any other terms that might be chosen."—(*Parl. Rep.*, No. 715.)

This notion appears to us altogether visionary. It is like unroofing the cottages that the inmates may be compelled to take themselves off. We do not know whether Professor De Morgan still entertains this view; at any rate, what he most strongly insists on now is, that the coins below sixpence, or at least the copper coins, should be lowered by proclamation four per cent., so that the silver sixpence should be equal to twenty-five farthings, or six copper pence and a farthing. The argument, that such a proceeding on the part of the Government might produce a vague but dangerous impression of more extensive injustice, he meets, in his usual humorous vein, thus:—"A. B. goes to bed on the last night of farthings with six copper pence in his pocket, the equivalent of a half-shilling bit, which he has exchanged for them during the day. He rises on the first morning of mils an impoverished man. A Government flea has bit his pocket in the night, and has eaten four parts in the hundred of the value of his copper. His six copper bits will no longer change for the half-shilling bit: they want a new farthing, $\frac{24}{25}$ of the old farthing, to be what they were before. This never happens again: in all time to come, warned by bitter experience, he will not let his half-shilling go until he sees the odd farthing which is to come in. This tone is no exaggeration. This spoliation, this robbery of four per cent. of a man's odd copper, done once in his life, that he and his children may be benefited for ever, has been spoken of as if it were a thing to rouse a patriot and kill a philanthropist."

The Astronomer Royal, and some others, entertain a slightly modified opinion, the propriety of which is very questionable, viz., that the light pennies should pass as four mil pieces, and the heavy rimmed pennies of Bolton and Watt's coinage as five mil pieces. Of course, arrangements of this kind will be only temporary during the transition state of the currency; but those who are aware of the vast amount of coinage in circulation, and of the extreme difficulty of calling it in and replacing it, need not be told that the transition period will be very great indeed. Were a system of decimal accounts at once legalised, few of those concerned in the change would live to see the new coins firmly established, and the old tolerably scarce. The Master of the Mint estimated the whole amount of British silver in circulation in 1853 at 13,000,000 sterling in value, or about 236,000,000 pieces of all denominations; of which 125,000,000 silver pieces would require to be withdrawn and recoined. Further, the amount of copper in circulation is about 5000 tons, numbering 270,000,000 of pieces. All this would have to be recoined; in addition to which, the shillings, numbering about 110,000,000, would require ultimately to be re-issued as half-florins. The preliminary steps would be to withdraw the half-crown, to increase the number of florins, and to coin a cent piece. With a view to the withdrawal of the half-crown, the Master of the Mint issued a circular to the bankers in 1854, requesting to be informed if the florin has been approved, and if approved, how far on its own merits, as a convenient element of value in itself, and how far as a presumed stage in the transition to a decimal coinage. The answers which he obtained are very contradictory—so much so, that, presuming them to be exponents of the sentiments of the same class of the public, they are altogether worthless. Messrs Smith, Payne, and Co. say that the florin is generally disliked; Messrs Bosanquet, that it is generally approved: which are we to believe? Observe, these are not the opinions of individuals, to which any amount of latitude may fairly be allowed, but conclusions drawn by men who are in hourly communication with the public on this very point, as to what the public approve or disapprove. In the meantime, the Mint continues its issue of florins coined out of new silver, and allows them to circulate along with the existing 37,000,000 of half-crowns. This proceeding is justifiable only on the hypothesis that the decimal must ultimately supersede the present coinage. The co-existence of the florin and half-crown is very generally disapproved. Thirty-seven bankers draw attention to the confusion and mistake caused by the similarity of the coins. After all, however, the public will cheerfully bear a considerable amount of inconvenience, provided they shall be satisfied that it will result in a great ultimate benefit to the country.

A question of far greater importance remains to be considered. The introduction of the pound and mil system, in whatever form it may be effected, will involve as a necessity the abolition of the penny, or, what amounts to the same thing, the alteration of its relative value. Hence the necessity for the readjustment of a great number of existing contracts and obligations based upon that coin. These embrace duties by which a considerable part of the public revenue is raised, such as postage, newspaper and receipt stamps, as well as many duties of customs; in addition to the class of cases in which private interests are concerned, such as railway, bridge, ferry, and road tolls. To alter such charges to the nearest equivalent in the new coinage—four mils—would entail a loss to the receiver of 4 per cent.; whilst, if the next higher coin—five mils—were substituted, the payer would be subjected to a loss of 20 per cent. The conclusions to which the Parliamentary Committee arrived relative to the arrangement of these matters, are more satisfactory as regards cumulative payments, than as regards those which must usually be made in very small sums, amounting to a few pence only. Newspaper stamps, for example, may be charged by the dozen, so that the price shall remain exactly the same as at present. But there is a real difficulty in dealing with postage and receipt stamps. The Committee appear to have a slight leaning towards the increased price of 5 mils, because of its decimal character. Relative to the very important question of railway charges, tolls, etc., they mention, with hesitation, one suggestion only of the many which were presented to them, viz., that the loss which would be sustained by the ultimate reduction (to 4 mils) in the charges, might be provided for by sanctioning a small increase (to 5 mils) in those charges for a limited period. They do not name a period; but the Astronomer Royal fixed it at five years, which corresponds with the calculations of Professor De Morgan. They conclude this branch of their Report by referring the House to the evidence they have received on the subject. Turning to that evidence, we find a principle laid down by the Astronomer Royal, which met the views of many of the witnesses subsequently examined, "that payments defined by the old scale are to be discharged, on the new scale, by their equivalents in the nearest mil." The great objection to the working of this principle, besides its inequality, is the necessity which it imposes of constant recourse to a table or tables published by authority. The drover who pays 8 mils of toll for his score of sheep, will require some persuasion to induce him to pay 17 mils for two score. The bone of contention in his new multiplication table—twice 8 make 17—will stick in his throat, and ruffle his temper.

A host of such difficulties as these remain undisposed of, amply

sufficient to give strength to the opponent scheme, which consists in making the existing penny the unit for multiplication and division, and in coining a tenpenny piece as the silver unit. This coin we shall term a franc.

To this scheme we now proceed to direct our attention very briefly. The views of its supporters are to be gathered from the evidence in the Preliminary Report of the Royal Commission. This scheme has not, like its opponent, the advantage of an association of influential and wealthy men at its back. It rests entirely on the able advocacy of its proposers, the most prominent of whom is Dr J. E. Gray, of the British Museum. To this gentleman the country is indebted for the compilation of an index of writings on the subject of the coinage, arranged chronologically, from 1605 to 1857. It may be noticed, that, whilst the supporters of the pound and mil scheme are unanimous in favour of a change of the coinage, the supporters of the penny scheme are not so. Many of them would prefer that things should remain as they are. Mr Slater, for instance, the first witness examined by the Commissioners, is by no means an advocate for any change; and Dr Gray is averse to change, and proposes the penny unit only if driven to a decimal system. Mr Rathbone, on the other hand, is quite decided in favour of a decimal scale, and equally decided in condemning the pound and mil scheme, as likely to prove mischievous rather than otherwise.

The principal arguments on which the advocates of the penny and tenpenny scheme maintain its superiority to its rival, are these:—

1. The pound and mil scheme alters or destroys all coins below sixpence, whilst the other does not affect them.

2. It requires the constant use of three decimal places, or three places of figures, below the unit, the lowest of which, amounting occasionally to more than twopence, could not, even in banking and mercantile accounts, be omitted: the other requires but one figure below the unit.

3. The lowest coin in the pound and mil scheme is not sufficiently small, whereas the other would admit of the adoption of coins of the tenth of a penny.

4. The one disarranges all duties, tolls, contracts, etc., which the other does not affect.

5. The new coins on the pound and mil scheme offer no facility for comparison with those of other countries that have adopted the decimal system, as not a single foreign coin of those countries bears any approximate relation to the florin, cent, or mil; whereas the franc of France, Belgium, Switzerland, and Italy being nearly equivalent to *one*, the florins of Holland and Germany to *two*, and the dollar of America to *five* of these ten-

penny coins, the latter system will afford great facilities for exchanges.

6. The pound and mil scheme, by disarranging the lower monies, throws all the difficulty and confusion attendant on change on the poor, who are least prepared to encounter them, and who do not seek a change: the penny scheme makes no alteration in the lower monies.

7. The former system must be introduced suddenly by Act of Parliament, and cannot co-exist with our present system: the latter can be introduced gradually, as found advantageous.

It would be tedious to enter in detail into the arguments of the supporters of the tenpenny scheme. A few of the most effective must suffice.

Dr Gray says, "The question may be shortly stated thus:—1. Shall we retain the pound as the unit, divided into 10th, 100th, and 1000th parts, and thus introduce an entirely new set of coins, with new names and of new values, together with a complicated, and, in many cases, an inaccurate, system of computation, producing much confusion, and engendering great distrust among the people at large?

"Or 2. Shall we relinquish the pound as a money of account, retaining all our present coins, with the same names and with the same values, together with a perfect decimal system of accounts, and a simple and perfectly accurate system of computation, which may be brought into use without any confusion or alteration in the habits of the people at large, who may indifferently use either the present system or the new one, until they become satisfied of the advantages of the latter? . . . . The chief arguments in favour of the practical advantages of the decimal system, are drawn from its use on the Continent and in the United States of America. But all the countries referred to have uniformly avoided the great evil which I have pointed out in the Committee's scheme, by choosing a small unit, which for the lowest values would require only two places of decimals. Thus the unit of France, Belgium, and Switzerland, is nearly equivalent to our proposed tenpence; that of Holland to twentypence; and those of Italy, Savoy, the United States of America, Canada, Singapore, etc., to fifty English pence."—(*Prel. Rep. of Royal Commission*, No. 413.) "Every country that has adopted a decimal system has based it on the small current coin of the people; they have never altered the smaller coin, analogous to our penny, in the least."—(*Ibid.*, No. 352.) "The Government having before their minds the public excitement at Athens in the time of Aristophanes, and at Dublin in the time of Swift, when only a slight alteration in the coinage was undertaken, and being aware of the numerous legislative changes required, to

adjust the taxes, tolls, wages, outstanding bills, and promissory notes, etc., to the altered coinage, to the debasement of the standard, to the depreciation of the copper coinage, and consequent confiscation of private property,—will not willingly incur the responsibility of proposing the extraordinary and, I may say, unjust changes which the system recommended by the late Parliamentary Committee involves; which are wholly dependent on the assumption that the pound *must* be retained as the unit, on the erroneous idea that it is beneficial for the richer commercial classes; no other nation in the world using a decimal system, having a unit of one-fourth that amount."—(*Ibid.*, No. 358.)

Mr Turner gives some examples of the injury which would be produced by the depreciation of the penny, in addition to those which were dealt with by the Parliamentary Committee. For example: Benefit Societies—"The Manchester Unity, which is the largest, has 4000 lodges, and 230,000 members. I find that most of the lodges pay every fortnight; the subscription rising from 4d. a week to 7d. a week. If the cent and mil plan were carried into operation, the old members will have paid in in the large pence, and they will have to receive out in the small pence."—(*Ibid.*, No. 641.) Mr Turner also insists on the injury which would be inflicted on certain retail traders, for instance, the publicans, who sell beer at a penny the half-pint—an unalterable price,—and who could not diminish the strength of the article without causing it to cease to be beer.

Mr Slater advocates the tenpenny unit on the ground of its near approach in value to the French franc. He states that the firm of which he is a partner are very large importers of French goods, and, of course, have to sell those goods in English money. The reduction from French money would, on the system he prefers, be simply the subtraction in the invoice of a certain rate of discount. At the present moment, he states that it is the practice to take French monies as at twenty-five francs to the pound, whatever the rate of exchange may be. The simplicity of converting French money into English by multiplying by four is so great, that any little difference afterwards is to be regulated by a per-centage.

Mr Rathbone is decided in favour of a decimal monetary system: he is equally decided in favour of the adoption of the tenpenny scheme. He further declares that it is not necessary to abandon the pound; but, when pressed by the Committee to reconcile the retention of the pound with a penny or tenpenny unit, of neither of which is it a decimal multiple, he admitted that, practically, the pound must in the end cease to be a money of account.

Mr James Lawrie, to whose evidence in favour of the pound

and mil scheme we have before alluded, was employed by the Committee to draw up tables on their plan. The result appears to have been that he changed his opinion, and, a few days before his death, published a treatise setting forth the grievances which would arise out of the Parliamentary scheme, and the superior advantages of the tenpenny. He argues that our coinage, as it stands, does not descend low enough, and that the pound and mil scheme supplies no remedy. When buttons are sold at 41 for a farthing, and tape at 5 yards for a farthing, he thinks a unit should be adopted which would enable the buyer to pay a smaller sum than a farthing or a mil, and this he finds can be done by the tenpenny scheme.

We believe we have exhibited some of the most forcible arguments used by the supporters of the tenpenny scheme. We do not extend them, simply because we are satisfied that the adoption of this scheme will never be seriously entertained by the Government. Is it conceivable that we shall abandon, as a coin of account, the pound sterling—the standard gold coin—the legal tender—the unit of our historians, our financiers, our merchants, our landlords? Must all the literature of our language be interpreted by the aid of a Ready Reckoner? or must the coins which cross our hands, and those of which we write and speak, be totally different? Shall we submit for half a century to translate shillings into francs, or to see the two pieces, which are scarcely commensurable, jostling each other in the market? Must the labouring man, whose wages are stated at 15 francs, calculate how many shillings he is to receive? We cannot believe it; we are almost disposed to meet the advocates of the scheme with some of the raillery with which Mr De Morgan treats them. This is a specimen of his wit:—"Some people on the tenpenny side had called themselves Little-endians, and the pound and mil people Big-endians. They had got hold of the poker by the wrong end. Lemuel Gulliver—on whom all relied except the Irish Bishop, who, when the voyage to Lilliput appeared, declared he didn't believe half of it—stated that the Endian dispute arose out of the following dogma:—'True believers break their eggs at the convenient end.' Now the pound and mil people believe that the small end is that at which the coinage ought to be broken, and a small crack of four per cent. in the copper serves their purpose; but the real Big-endians, the tenpenny people, smash the sovereign into tenpenny bits, making such a hole as lets out all the meat in getting rid of the pound and the shilling."

Speaking of the humbler classes, he says, "One of them might be addressed by an advocate of the tenpenny system as follows, not without irony, but with perfect truth:—

"My friend, there are a set of people who, for their own commercial convenience, are meditating a robbery on your pocket. They want to declare the copper coin less in value by four per cent.; they want to make 25 farthings go to the half shilling, now sixpence. This will probably cost you a fraction of a farthing, perhaps a whole farthing, or even more, etc., etc. Now, we have got a plan which will give all the advantages, and save you from losing a fraction of a farthing, though we confess that, to make your penny a fixture, we shall have to make your shilling a puzzle. You shall have coins of tenpence each mixed with shillings; your wages shall be handed to you in mixed tenpenny and twelvepenny bits. You get seventeen shillings a week, perhaps. Now, one week your master will hand you 13 shillings, 4 tenpennies and a sixpence, and 2 pence, which, of course, you see in a moment is 17 shillings. Next week you may have 11 shillings, 7 tenpennies, and 2 pence, which you also see must be 17 shillings, without any trouble."—(*British Almanack*, 1857.)

Assuming, then, that the tenpenny scheme has no chance during the present agitation, and that its intrinsic merits do not in any degree counterbalance its defects, we shall take leave of it. The question for discussion is now narrowed down to the determination of the alternative: shall we adopt the pound and mil scheme, or shall we remain as we are? We must, in order to do full justice to the argument, consider separately what are the respective merits and defects of the two systems, that we may judge of the advantages of the change when it shall be long established and in full operation; and whether these advantages are of such moment as to warrant the Government in risking so great an innovation on the thoughts and dealings of the people.

III. We have, then, in the next place, to contrast the present with the proposed coinage; and we will endeavour to do so in as fair and impartial a manner as we can. It is, perhaps, impossible for one who has a decided bias towards either system, fairly and fully to exhibit the strong points of the other. Should the following comparison appear to be in any respect unjust to the advocates of the proposed scheme, we trust we may be admitted to plead, that we have been drawn to one side by our convictions, not by our prejudices.

We must premise, that the number of considerations which should be taken into account, in order to lead to a correct judgment in this matter, is very large. And the difficulty in arriving at a right conclusion, arises from the uncertainty which must always attach itself to the relative weights of the various considerations. One person believes the primary object of the coinage is to be sought for in the ledger of the banker, or in the

valuation-sheet of the actuary. Another places it in the mental reckoning and adjustment of the innumerable petty transactions of common life. A third refers it to the less ordinary, but possibly not less important, interchanges of metallic coin which take place between different nations. And each, looking at the question from his own point of view, is confronted with some prominent prime requisite, towards which all others must bend. Were the banker's ledger and the actuary's valuation-sheet to be the only objects contemplated, a decimal system might possibly carry the day without a struggle. Professor De Morgan, the active and consistent advocate of change, has laboured to make plain the distinction between questions of account and questions of coinage. He has shown how simply accounts may be decimalised by a change in value of the lower coins; he has shown, further, how easily the usual fractions of a pound sterling can be instantaneously converted into decimals. But to what effect? Have the large body of merchants and bankers who have petitioned for a change, followed the example of their teacher in availing themselves of the facilities of a decimal system, as things are? Does one of them seek to take advantage of the power, which the proposed change will not extend, of entering the second column in florins? On the contrary, was not the opinion of the bankers, when pressed, rather unfavourable to decimalisation?—(*Prel. Rep.*, p. 161.) We must, therefore, not suffer our minds to be drawn off by the lure of the apparently trifling cost at which we may purchase a new and improved system of accounts. We must hesitate to form a judgment until the subject has been contemplated in all its aspects, and even then our judgment will have little more than a temporary value. It may lead us to pause before we venture on any immediate change; but it will hardly determine us as to the steps which may ultimately be taken.

The following are some of the conditions which a coinage has to fulfil:—

1. The coins should be few, well separated, and easily understood.

2. Certain coins, placed at convenient intervals, should present themselves as independent units; and these units should be expressible in simple terms of each other. The size, value, and weight of these units should be so adjusted that the coin of the hand shall also be the coin of account.

3. The coins should carry in their appearance some faint indication of their value, even to foreigners unaccustomed to them.

4. The system on which the coinage proceeds, and the position of the coins of account, should be convenient for the computations which are made in the counting-house and the study.

5. The coins and their subdivisions should harmonise with the reckonings that accompany the petty payments of every-day life.

To these might be added a *sixth* condition, which relates to international exchanges; but, in the present state of the question, the discussion of such a condition does not promise to lead to any practical result.

1. In regard to *the number of coins and their separation*, the existing system and the proposed stand nearly on the same level. It will probably be thought desirable to combine a binary division with a denary in the new silver coinage. In this case the systems will stand thus:—

Present, ¼d., ½d., 1d.	3d., 4d., 6d., 1s., 2s. 6d.	10s. L.
Proposed, 1m., 2m., 5m.	1c., 2c., 2½c., 5c., 1f.	50c. L.

Here we have the same number of coins in each, viz., three of copper, five of silver, and two of gold; we have also, for all practical purposes, the same range; we have, further, no evident advantage on either side in the mode of paying a given sum. For example, sums up to 6d. would be paid, we imagine, to the extreme farthing or mil: the average, on our present system, is $2\frac{5}{24}$ coins for each payment; whilst on the proposed system, the average would be $2\frac{6}{25}$ for sums extending from 6d. to 1s., payments need be made only to the ½d., or 2 mil piece. We find, then, giving to the proposed system the benefit of its fives when they occur, that the average on our present system is $2\frac{1}{2}$ coins for each payment; whilst on the proposed system, the average would be $2\frac{10}{13}$. Lastly, from 1s. to 2s., stopping at the penny in both, the present average is $2\frac{2}{3}$ coins, the proposed, $2\frac{2}{5}$. So far, therefore, the combination of the binary with the denary system gives it no advantage over our own.

2. In regard to *the selection of the units*, the decimal system of necessity sacrifices every other consideration to the one prime requisite that they shall be multiples of one another by 10. In our existing system, the three coins which respectively present themselves as independent units, are the penny, the shilling, and the pound. The halfpenny and farthing are referred to the penny; the crown and half-crown, partly to the shilling and partly to the pound; and the half-sovereign, partly to the shilling and partly to the sovereign. In the proposed system, the independent units are the mil, the cent, the florin, and the pound. Now, we believe it will not be denied that the existing system has the advantage in this respect over the decimal. The former has three independent coins, the latter four. In the former, these coins are respectively in the three different current metals; in the latter this cannot be the case. The former affords facilities both for multiplication and for division; the latter for multiplication only. In

the former, the intervals increase as the coins increase in value; in the latter, the intervals are equal. It is true the simplicity of the construction of a decimal system, and its coincidence with that of numeral arithmetic, appear to be grounds of recommendation; but these very grounds offer their counterbalancing disadvantages as contrasted with our existing system,—the most notable of which are, the want of successive divisibility by two, and the inappropriateness of both the silver and the copper units, as coins of reference. We will endeavour to make this clear. The existing coins are constructed on the following principles:—

First, Every separate coin divides by four, in terms of the next lower; so that the constantly recurring operations of halving and quartering are performed without the necessity of introducing fractions.

Secondly, The ratio of each coin to the unit next above it, is an increasing ratio as the coin increases. Four is sufficient for the farthings, but a unit of fourpence would be preposterously near to the penny; and accordingly the next prime number, 3, is introduced,—thus making 12 the interval between the copper and the silver unit. On the same principle, 12 would be an unnecessarily small interval between the shilling and the highest coin. And as, besides, division by three is already provided for, the next prime number, 5, is employed, making 20 the interval between the silver and the gold unit. The coins thus rise from the lowest in the simplest conceivable ascending scale—four ones, four threes, four fives. Four ones—four farthings make a penny; four threes—twelve pence make a shilling; four fives—twenty shillings make a pound. The highest coin is thereby rendered divisible, not only by 3 and by 5, but, what is more of importance six times over, by 2.

Thirdly, The values of the units are such as experience has determined to be convenient. In France, the centime is too far below the franc, the consequence of which is that the *sou* sticks to the coinage like a limpet. "Galignani's Messenger" is priced, at this very moment, not 5 décimes nor 50 centimes, but 10 sous; and, in 1855, Louis Napoleon issued a proclamation, forbidding people to cry their wares in the streets in sous. In America, the dollar is too far above the cent, and the quarter dollar has been found to take its place as a separate unit. In both countries, the tendency has been to introduce a new coin of representation, which the decimal interval had found itself incapable of placing. Arbitrary power may cry down the sou in France, but the voice of the people will cry up the quarter-dollar in America; nay, not always the quarter-dollar: with its local habitation it has also claimed to itself a name. In many parts

of the States, and in Canada West, it goes under the appellation of the "quarter"—a noun substantive, *plural* quarters. An hotel-keeper, in saying, "I have run short of quarters," does not mean you to infer that his accommodation is scanty as to sleeping apartments, but as to silver coins. The decimalists contemplate the preservation of the shilling as the half florin, and they imagine that the people will refer their operations on that coin to operations on the florin; but they deceive themselves. Fifty years after the introduction of the decimal coinage, the people will halve and quarter their shilling, just as they do now; and thus the shilling will undecimalise or confuse the English coinage, precisely as the shilling, sixty years after its abolition, undecimalises and confuses the monetary system of America. In the latter country, it has nothing but custom and the facilities it affords for binary division to rest on. For appropriateness of value and size it yields to the quarter-dollar, but with us it combines all the requisites in itself; and, though its beauty may be destroyed by the annihilation of the penny, the shilling will continue to be the coin of representation. And let us see how it will work. In America, the old dollar was divided into 8 York shillings, whilst the quarter-dollar is divided decimally into 25 cents. A stranger in New York is astonished to hear the *word* shilling in everybody's mouth; and he has the additional gratification of being puzzled to know whether it means 12 or 13 cents. The fact is, the half of the every-day coin, the quarter-dollar, varies with a man's conscience or his convenience. Thus, Mr Barnum charges 13 cents for the admission of children to his museum; whilst Mr Lee, of the Bowery Varieties, is content to admit them at 12 cents,—the quarter-dollar of 25 cents being, in both cases, the charge for adults. The New York omnibuses —established long after sixpences had ceased to exist—contended, for a time, for the full fare of the quarter quarter-dollar, corresponding in every way to our threepence, but have now limited themselves to the nearest integral approximation to that sum in the charge of 6 cents. We assure our readers that the quarter-dollar is the pocket coin of the New Yorkers, just as the shilling is of the Londoners. And both cities treat their coin in the same way: they divide it, subdivide it, and re-divide it—aye, and re-subdivide it by 2. The latter assertion will be fully established in the sequel. Relative to the former, we will content ourselves at present with quoting a single example. We take it because it comes first to hand, in the *New York Herald* of September 5, 1857. Out of fifteen advertisements of excursions and amusements, ten, or two-thirds, are at a quarter-dollar. And does not this fact, derived from the experience of America, furnish us with a powerful argument in favour of the retention of the shilling as

a coin of account, as a coin of name, as the silver unit?—not the mutilated shilling called a half-florin, susceptible of only one useful division, and part of a system which supplies the additional luxury of presenting its largest copper coin in a form incapable of division at all.

But we have more to say about the shilling. We trust we shall be excused if we plead its cause at some length. For silver is the great element of exchange. Gold lies in dignified repose in the banks, and is largely replaced by paper in various forms. Copper is used only as the means of division and adjustment; but silver is the pocket coinage of all classes—the poor as well as the rich. In silver the daily earnings of the labouring man are accumulated—in silver the cheque of the merchant or the esquire is distributed. The silver *unit* is therefore a consideration of the utmost importance. There are various ways in which we may imagine it to be determined. Such as *by size.*

The coins should be small enough to pack easily; but not so small as readily to escape the eye, or the touch, or the ear, in falling to the ground. Dollars and crowns are too large. The United States mint has ceased to coin silver dollars, wisely confining its operations to the real silver unit, the quarter-dollar, with its divisions. Dimes (= 5d.) and sixpences are too small, and involve too much counting. In respect to size, then, the balance appears to be against the florin (2s.), or the cent ($2\frac{2}{3}$d.), and in favour of the shilling.

By *weight* combined with size. Philosophers have puzzled themselves to find the relations which exist between the force of gravity at the surface of the earth, and the appropriate size and strength of a human being. Possibly an extension of the investigation might lead to the discovery of the fittest weight of a coin. At any rate, the gold and silver units, both in France and in this country, are nicely adjusted to each other, whatever merits they may themselves possess. In this country, standard gold is about fourteen times as valuable as standard silver, so that, weight by weight, a gold coin will be equal in value to fourteen silver ones. But the gold is heavier than the silver in the proportion of about $17\frac{1}{2}$ to 10; hence, bulk by bulk, a gold coin is equal in value to about twenty-five silver ones. The mean between 14 and 25 is very much about 20, the exact proportion in value which the existing gold unit bears to the silver. In other words, the sovereign is heavier than the shilling in nearly the same proportion that it is smaller.

Another way in which we may imagine the silver unit to be determined is by its *value*, as the average of the ordinary single payment. This last condition must vary with different nations, and at different periods. At the foot of the scale amongst the

nations of India, the rupee occupies the same position that the sovereign does with us, whilst cowrie shells fill the place of our copper coinage. On the other hand, in California[1] and Australia, where, from temporary causes, the value of metal bears a smaller ratio to that of the necessaries of life than it does with us, the silver coin occupies a lower position, and might be made larger without detriment.

But, after all, our imaginings are not worth much. A safer appeal is to our experience. Are the people not attached to the shilling? The Astronomer Royal, a warm advocate of change, must think they are, when he considers it requisite for the success of the decimal system that the name of the shilling, and with it the idea of the shilling, must be withdrawn.—(*Parl. Rep.*, No. 499.) The Astronomer Royal is right. The shilling will stand in the way of decimalisation. But he is also wrong; wrong in expecting to get rid of the shilling. Recoin it and recast it as you please, it will always come out the people's shilling, and nothing else. But we have not space to pursue this subject further. Let us now examine the promise of the new system,

3. In respect to *the appearance of the coins, whereby they may present some faint indication of their value even to foreigners.* Every one who has travelled on the Continent, has learnt by dear experience the difficulty of mastering the coinage. Who does not know the fact, that a silver groschen is not a good groschen—is indeed a very bad groschen? In Switzerland, prior to the introduction of francs and centimes in 1850, the current coins were batz, thin, worn down bits of copper, of the intrinsic value of half a farthing each, but current at the nominal value of 1½d. A party, entering the country in 1839, were imprudent enough to entrust the charge of the batz to a gentleman skilled in driving a bargain, but ignorant of the value of the money. Spying a basket of cherries, he made up to it, and counted out a score of these little coins, estimating his offer at something under 6d. The woman to whom it was tendered, to his great astonishment, handed over to him her whole stock in trade. He abstracted about a pound of cherries therefrom, and returned to the party in great glee, at the discovery of the ridiculous cheapness of cherries. His glee was a little

[1] In the South and West States of America, the lowest coin current is the picayune, or half-dime. Offer a strolling musician a cent, and he will probably reject it as worthless. In California, the lowest coin referred to is the half-quarter, or bit, or shilling, viz., 12½ cents. As, however, dimes are tolerably abundant, they are made to serve as shilling tokens. Four dimes, not five, are the common change for half a dollar. The people are too busy to avail themselves of the "labour-saving machine" provided for them; so they stick to halves and quarters, and ignore fifths.

modified when he found that he had unwittingly paid half-a-crown for his pound of cherries, instead of sixpence. As a natural consequence of such a state of things, good French and German money circulated at a considerable premium. Thus the five-franc piece, which, at the beginning of the century, was current as 34 batz, rose ultimately to be worth 35½. Now, we should not like to see this country in the predicament from which Switzerland has just emerged. There is, indeed, no fear of that. But the cent—one of the units of the proposed coinage—is a troublesome customer. Its value is 2⅖d. It is too small for silver, too large for copper. Most of us think the threepenny piece small enough. To be sure it is an excellent make-weight, circulating as it does at the rate of one threepenny piece for every forty shillings. But let the proportions be reversed; let forty threepenny pieces be counted out for every shilling, and we shall soon begin to grumble. As a silver unit, therefore, the cent is not promising.[1] It has been urged that it is about the size of the American gold dollar; but those who make this appeal forget that the question in America is not between a gold and silver dollar, but between gold and paper—too frequently between gold and waste paper. But will not copper do? We think not. Some of the advocates of the decimal system—the late Governor of the Bank of England, Mr Hankey, for instance—consider the penny rather a large and inconvenient coin to carry about. And even those who differ from him have only to travel in the Papal States, and make acquaintance with the copper paul or half-paul, to determine them for ever against the copper cent. And is there no escape from the dilemma? Yes, certainly. There are as many devices for escape as Reynard boasted of to Pussy, in contempt of her one miserable shift of climbing up a tree; and with much the same success. There is the silvered coin, like the old Swiss batz; the alloyed coin, like the silver groschen; the copper coin rimmed with silver, like the astronomer's mural circle; the ring coin, like the Chinese cash, convenient also for necklaces;—in fact, and to be serious, there is no coin at all:—a conclusion to which Sir John Herschel, when Master of the Mint, himself virtually arrived (*Parl. Rep.*, No. 583).

4 and 5. *A good system of coinage should afford, at the same time, facilities for account-keeping and for the petty transactions of every-day life.*

[1] The early English coin—the penny or sterling—was larger than the proposed cent. It was the 240th part of a pound of standard silver (*the* pound), and its value was, consequently, a little above 3d. In its weight—the penny-weight—it still survives. When Edward I. coined fourpenny pieces (about the year 1280), they were termed groats or great coins, and were much the same as our shillings.

We have placed these two conditions in juxtaposition, because the requirements of the one run, to some extent, counter to those of the other. There can be no doubt that the multiplications and reductions which occur in such vast numbers at the desk, would be greatly shortened by the assimilation of the monetary to the numeral system. This may be fairly conceded to the advocates of decimalisation. But they probably expect more. And, but for the melancholy fact, that ten is one of the very worst of even numbers for purposes of reckoning, we should be disposed to yield them more. The uncivilised South Sea Islander, as truly as the civilised Greek, walked on his ten toes, and counted on his ten fingers. Thus nature taught him arithmetic: she taught him to count upwards by tens. But what did she teach him about counting downwards? Either she, or her handmaid necessity, taught him not to divide by tens, but by halves. Halving and re-halving are the almost universal processes of division—so much so, we are persuaded, as to justify the strong expression employed in Lord Overstone's 38th question, that the coins "should harmonise with the natural tendency of mankind to subdivide commodities for retail purposes by continual halving." When a people, the money in whose hands is decimal, and decimal only, require to reckon and think downwards below their coinage, do they descend by the decimal scale? Nothing of the kind. A glance at the American papers will show that the prices of cottons are quoted in binary divisions—$\frac{1}{8}$, $\frac{13}{16}$, $\frac{11}{32}$, etc. The obvious conclusion from this fact is not set aside by the statement, that "these are mere paper prices." If the mind instinctively seizes on the binary division where it has not the guidance of an actual coin; and if, relative to these transactions on a large scale, a considerable amount of extra labour in calculation is sacrificed to a mode of representation which can be readily grasped, then may we be sure that binary division is founded in some deep principle, and that, where it exists, it will hold its place spite of legal enactments. But it may be objected,—"Is the existing monetary system binary? and is the proposed system altogether deficient of binary qualities?" The answer is easy. The old silver unit, the shilling, is divisible four times over by 2; the new silver unit, the half-florin or new shilling, is divisible only once by 2; the old copper unit, the penny, is divisible twice by 2; the new copper unit, the five mil piece, is not divisible by 2 at all. We need say no more. We trust we have made it clear that our existing monetary system has many great and striking advantages over its opponent. That these advantages more than counterbalance any facilities which the other may afford, in regard to certain questions of account-keeping and computation, we are firmly convinced. But, as we cannot expect to convince those who, after

careful study, have arrived at the contrary conclusion, we beg to call their anxious attention to what we have to say on the next head.

IV. It remains that we inquire into the probable consequences of the introduction of a decimal coinage into this country. Will it give satisfaction to the nation at large? Will it be received and acted on as fully and completely as our present system is? Will the mass of the people, after any moderate interval—say half a century—cease to think and to operate on their shillings and pence? We believe that the answer to these questions must be such as to deter our legislators from attempting innovation. The decimalists do indeed assure us, that the system they propose is working satisfactorily in most of the countries into which it has been introduced. But they forget the grounds of satisfaction. When the French nation shook itself free of its old monarchy, the magnificent ideas of the National Convention sought to discover the law of nature, and to make it the law of France and of the world. In France and in America, decimalisation was regarded as the republican system, as something like a feather in the cap of liberty. Right or wrong, the people were not likely to be lynx-eyed to the inconveniences of a state of things which they had brought on themselves. It must be remembered that the change was effected in France in the year 1793—the year I.—the commencement of all things new. It formed part of a grand system. The month was to be thirty days, the last day of each decade being the day of rest in place of the old Sunday. The day was to consist of ten hours; and new dials were ordered to be constructed to bring this mode of reckoning time into practice. "Nevertheless," says M. Thiers, "in order to avoid forcing everything at once, this last reform was postponed for a year"! For a year—for ever. And even the most reasonable change, that of the coinage, was extremely unpopular. M. St. Hiliare informs us that its unpopularity lasted thirty years with the lower orders, and that half a century did not suffice thoroughly to establish it.

In America, also, the conservatism of the Anglo-Saxon race has preserved amply sufficient remains of the previous state of things to serve as a warning to us. We shall see in the sequel that an interval of seventy years has had almost no effect in banishing from the thoughts and affections of the people a monetary system, which the sovereign people themselves formally sentenced to perpetual exile. But of that by and by. At present, what we contend for is the small value which must be attached to the argument, that, because other nations have submitted calmly, or even complacently, to decimalisation, therefore we may reckon on the acceptability of the same system in this country. The

circumstances of France and America were totally different from our own—far more favourable to change. And yet success in these countries has been anything but triumphant. Still, argue the decimalists, it has been sufficient to induce other countries to follow their example: Switzerland and Canada have quite recently adopted a decimal coinage. A little consideration will show that decimalisation was but a trifling element in directing the counsels of those countries. The discreditable state of the old coinage of Switzerland we have already referred to. It was not easy to change for the worse. And when the Swiss did effect a change, it was but the exercise of sound judgment, on the part of the people, to accommodate their system to that of their powerful neighbour, France. And in regard to British America, the confusion which existed there prior to the introduction of dollars and cents, in January last, beggars description. The coins in circulation were English sovereigns and shillings; but the nominal value of those coins was expressed in the currency of the respective colonies. In Canada, the sovereign was, until recently, 24s. 4d.; in New Brunswick, 25s. 6d.; in Nova Scotia, 25s.; and in Prince Edward's Island, 30s. To add to the confusion, the word shilling was also applied to the 6d. sterling—the value of a coin which once existed in the States, and probably in Canada also. Thus the people had the really Chinese luxury of five distinct meanings to the word which was most frequently on their lips in the shop and in the market. That the Canadas should seek a change from such a Babel, cannot be wondered at. Nor are we surprised at their adoption of the system of the States. Similarity of coinage is almost as necessary in the two countries as it is in Scotland and England.

But all this has no bearing whatever on the acceptability of a change of system in this country. No one pretends to assert that our pounds, shillings, and pence are inconvenient for the purposes of the people. There are not four distinct values to the pound sterling here, as was the case in the old colonies of America before the federal constitution of 1789,—as was the case in the existing British American colonies within the last few years. Nor is there any dissatisfaction expressed with the coins themselves. They create no confusion; they give rise to no ambiguity. The people are not ready to jump at a novelty as a certain boon. On the contrary, they will assuredly cling with affection to a coinage which long years have familiarised to them. That we do not venture this assertion on insufficient grounds, will, we trust, be admitted, provided we can prove that decimalisation in America, which was set agoing by the people themselves, as an experiment, in 1786, and afterwards fully organised in 1792, has not even now shaken itself clear of the modes of

speaking and thinking which it was intended to supersede—has indeed, as yet, hardly affected them at all. And if this is the experience in a young country, with a population drafted from every quarter of Europe, having no conservative associations to attach them to the old coinage, but, on the contrary, enjoying a system selected as the monument of their independence; what may we expect from a change in this country, where old associations link the people to the monetary system as to an heirloom from their fathers?

And that we have not misstated the experience of the older states of America, we are prepared to prove. It might suffice if we brought in proof statements made by Americans themselves, such as that of the editor of the *New York Independent*, Mr Leavitt, who says (1855):—"The provincial currency of New York, before the revolution, was framed upon the reckoning of eight shillings to a dollar; and when the federal currency was introduced in matters of coin, the common people still clung to the old shilling, as a matter of necessary convenience, in their pocket payments; and the experience of sixty years has not in the least diminished their attachment to this method of reckoning in small payments." Or that of Mr J. Quincey Adams (1821), who says:—"Even now, at the end of thirty years, ask a tradesman or shopkeeper in any of our cities what is a dime or a mille, and the chances are four in five that he will not understand your question. But go to New York, and offer in payment the Spanish coin, the unit of the Spanish piece of eight, and the shop or market man will take it for a *shilling*. . . . And thus we have English denominations most absurdly and diversely applied to Spanish coins, while our own lawfully established dime and mille remain, to the great mass of the people, among the hidden mysteries of political economy—state secrets."

But we attach more weight to facts than to opinions; and to facts we will appeal. We suppose the bill of fare of an eating-house is likely to accommodate its prices to the customs of the people. We happen to possess one, which is a fair specimen of the kind of thing in the state of New York. To prevent mistakes, we present the articles and prices in full and verbatim, omitting nothing which is priced:—

J. M. M'NAMARA & Co.'s DINING SALOON,
SYRACUSE, N. Y. AUGUST 1857.

FISH.

	S.	D.		S.	D.
Oysters, per dozen, raw, .	2	6	Oysters, fried in crumbs, per doz.,	3	0
„ per half-dozen, .	1	6	„ „ „ per half,	2	0
Oyster Stew, . .	2	0	„ fried in batter, per doz.,	3	0
Oysters, broiled, . .	3	0	„ „ „ per half,	2	0

Miscellaneous Dishes.

	s.	d.		s.	d.
Beefsteak, with Potatoes,	2	0	Sandwiches,	0	6
Porter-house steak,	3	0	Tomatoes, raw,	0	6
Pork-chops,	2	0	Sardines,	1	0
Lamb,	2	0	Ham and eggs,	2	0
Veal cutlets,	2	0	„ broiled,	2	0
Roast turkey,	2	0	Omelets, plain,	1	6
„ beef,	2	0	„ with ham,	2	0
Frickassee chicken,	2	0	„ with herbs,	2	0
Pork and beans,	1	0	Eggs, poached,	1	0
Potatoes, stewed and fried,	0	6	„ scrambled,	1	0
Kidneys, wine sauce,	3	0	„ fried,	1	0
Sweetbreads, tomato s.,	3	0	„ boiled,	1	0
Ven'n steak, cur'nt jelly,	3	0			

Cold Dishes.

	s.	d.		s.	d.
Corned beef,	1	0	Roast turkey,	1	0
„ ham,	1	0	Beef tongue,	1	0
Pigs' feet,	1	0	Lamb tongue,	0	6
Soused tripe,	1	0			

Wines, etc.

Heidsick, quarts,	Dols. 2 00	Hibhoard's brown stout, pints,	2s.
„ pints,	1 00	Muir & Son's Scotch ale, pints,	2s.
Claret, St Julien,	75	Fine draft ale,	$6\frac{1}{4}$
„ St Emelion,	1 00	Champagne cider,	$6\frac{1}{4}$
„ La Rose,	1 50	Mineral water,	$6\frac{1}{4}$
Congress water, quarts,	2s.	Memonade,[1]	$6\frac{1}{4}$

Pastry, etc.

Cranberry pie,	$6\frac{1}{4}$	Sponge cake,	$6\frac{1}{4}$	Buckwheat cakes,	$12\frac{1}{2}$
Lemon „	$6\frac{1}{4}$	Loaf,	$6\frac{1}{4}$	Hot Indian „	$12\frac{1}{2}$
Berry „	$6\frac{1}{4}$	Pound,	$6\frac{1}{4}$	Wheat „	$12\frac{1}{2}$
Green apple	[2]$6\frac{1}{2}$	Dry toast,	$6\frac{1}{4}$	Coffee, per cup,	$6\frac{1}{4}$
Pumpkin „	$6\frac{1}{4}$	Dipped,	$12\frac{1}{2}$	Green tea, per cup,	$6\frac{1}{4}$
Custard „	$6\frac{1}{4}$	Milk,	$18\frac{3}{4}$	Black „	$6\frac{1}{4}$
Mince „	$6\frac{1}{4}$	Butter,	25c.		

We will suppose two persons to enter this establishment, one of whom treats himself to half a dozen of oysters, and the other to a glass of milk. On demanding the charge, the waiter replies, "eighteen-pence a piece;" which means, in the coinage of the country, $18\frac{3}{4}$c. each. Now, this is really an impossible price, and the guests must be content to pay 19c. each, and lose the quarter cent. It is indeed just possible that a real, or half-real, a piece of money in the shape of the eighth or sixteenth of the old Mexican or Spanish dollar, may be in the hands of the parties. A few still remain—very few—certainly not enough to act on prices. These are influenced only by the *words* shilling and sixpence, the imperishable remains of a coinage which facilitated binary division.

[1] ? Misprint for Lemonade.

[2] ? Misprint for $6\frac{1}{4}$.

Again, let the reader take up an American newspaper, and he will find prices stated in this confused mixture of shillings and cents. He will see, too, that halves and quarters of cents occur wonderfully often—wonderfully, it must be confessed, when he learns that no such coins are in circulation. We have before us the *New York Dispatch* of January 24. Half the priced advertisements are given in the jargon we have described. What would a decimalist say to the two following consecutive lines of the same advertisement:—

> "Dark prints, 4 and 6¼c.
> Merino plaids, 1s. 6d. and 2s."?

Or to this,—

> "Yardwide flannels, 31¼c. and 37½c., worth 62½c."?

Perhaps he would look to the shop-boy for an explanation, and he would get it thus: The shop-boy would not think of reading the prices in cents. He would paraphrase the latter passages by "yard-wide flannels—half-a-crown, three shillings, and five shillings." And these are by no means isolated, exceptional cases. The truth is, the words shilling and sixpence meet the ears just as regularly in New York as in Old York. And the state of things in New England is not very different. There the old shilling was the sixth of a dollar. And spite of the experience of the Astronomer Royal, who, in the course of his life, to the best of his recollection, never had occasion to divide by 6 (Ans. to Lord Overstone's Question, No. 9), either its real convenience or the force of habit has preserved it on the lips of the people, long after it has vanished from their pockets.

As a further proof of what we assert, let us turn up any bookseller's catalogue. The bookselling trade has certainly as little of a local character as can well be imagined. The Boston, Philadelphia, and New York publishers, supply not only the States, but the British Provinces also. They are obliged, therefore, to make their prices intelligible to parties at a distance. This deprives their catalogues of much that would strengthen our argument; but, fortunately, enough remains behind. We take up, then, the American Book Catalogue, published in 1849, and, so far as we know, not yet reprinted. It is a goodly volume of 360 pages, in which the publications, from 1820 to 1848, of about seven hundred houses are arranged alphabetically. Fractions of a cent are altogether omitted, although they appear, to some extent, in the catalogues of the individual publishers. We have before us the Educational Catalogue of Messrs Appleton of New York. Here we find, amongst other things of the same kind, *The Primary Speller and Reader*, priced 12½ cents. To under-

stand the Book Catalogue, therefore, this circumstance must be borne in mind. Thus 42c., which occurs very frequently, is the nearest approximation to 41⅔c., or half-a-crown N.E. We have gone over pages 10, 15—305, taking every fifth page, and, omitting prices which are common to the decimal and the non-decimal system, we find the ratio of non-decimal prices (or prices expressible by exact numbers of shillings and sixpences) to decimal prices to be 117 to 40. In other words, there are three times as many prices expressed in shillings as in cents proper; and this, too, spite of the more extensive choice of decimal places. The space of half a century has, then, hardly sufficed to clear away one-fourth of the old habits of speaking and thinking in shillings. At this rate, much of that habit will survive to the year 2000.

We will exhibit the argument in another form. The decimalists have already commenced their approaches, and are sapping our system by the introduction of the florin as the substitute for the half-crown. We will try to conjecture the interval which must elapse between the periods when the half-crown shall cease to be a coin, and when it shall cease to be a price. We are not sure that any existing New Yorker can remember his half-crown. There is no such coin—for aught we know there never was one—and so, says the decimalist, there is an end of the matter. Softly, we entreat. Let him enter the stores of Broadway, and the phrase "two-and-sixpence" will greet his ears often enough. The people have not abandoned the language of their old currency. We have the authority of the Director of the U. S. Mint, Mr Snowden, for stating, that "the custom still obtains in many, if not most, of the older states of the Union, of expressing small prices *colloquially* in shillings and pence." But the decimalist would like us, perhaps, to consult the Book Catalogue. Well, we have no objection. The half-crown occurs often enough there, at any rate. And in such a questionable shape: 31 cents! Why, it is so near 30—three dimes, three coins which do exist—that even an anti-decimalist would hardly anticipate that the ghost of a half-crown should have a chance with its tangible rival. But how often does it occur? By a careful examination of the first 50 pages, we find that it occurs thereon 41 times, whilst its decimal neighbour 30 occurs only 22 times. The deceased half-crown beats its living successor two to one. Let those who are so industriously labouring to destroy our half-crown, complete the solution of this little problem: If an imaginary coin loses one-third of its being in 50 years, how long will it take to destroy a real one?

We have instanced the half-crown, not because it is the strongest example, but because it furnishes matter for *present* consideration. Is it possible to supplant the English half-crown?

Ought the attempt to be persevered in? Let the half-crown and the florin be allowed to struggle together, and we will answer for the result. The fourth of the half-sovereign against the fifth: the latter has no chance. Does it seem necessary to offer proof? Hardly necessary; but we will condescend on one. There is a gentleman at this moment in Britain, on some diplomatic errand relative to the coinage—Mr J. H. Alexander of Baltimore, U. S. His authority is unquestionable, and, as he is a thorough decimalist, can be open to no suspicion. It happened that Mr Quincey Adams had stated that the Americans have halves, quarters, etc., and *might have fifths* of a dollar. Lest the latter portion of this sentence should convey a wrong impression, Mr Alexander writes thus:—"The facts are, that they [the fifths] did exist. I myself have handled many hundreds of them; and they only went out of use because of their liability to be confused with the fourths, just as now a florin and a new Victoria half-crown are rather confusing to a stranger." The weaker went to the wall: and the weaker, even in a country where the decimal system is in full operation, is the decimal coin—the fifth.

Another example. A glance at the catalogue will show that 3s. N.Y., or 38 cents, is a very popular price. It will be found fourteen times on page 5. But where is its decimal neighbour 40? It does not occur on the page at all; and, on the succeeding fourteen pages, taken together, it does not occur fourteen times—only eight.

We conclude: If the old coinage prices have maintained their ground in America, both because they were once on the ground, and because of the facilities they afford for binary division—if they keep their ground against a system which is the glory of the very men who partially abandon it: what dire confusion will the historian of the British coinage have to record, should our legislators determine on the introduction of a decimal system, which is neither suited to the wants, nor demanded by the wishes, of the people?

There are other matters connected with the question before us, which we have not space to discuss. For example, the bearing of the decimalisation of the coinage on that of the weights and measures. At present the division of the shilling tallies completely, and that of the pound partially, with the combined binary and ternary division of our weights and measures. Ought we to preserve this connection? Unanimous as are the advocates of the pound and mil scheme on other points, they are completely divided on this. One thinks decimalisation should commence with the coinage; another, that it should com-

mence with the weights and measures; a third, that it should take effect simultaneously in the two. Those who anticipate that the dealings of the people will, to any extent, spontaneously accommodate themselves to the coinage,—for instance, that wine will cease to be sold by the dozen, and come to be sold by the ten,—labour under a delusion. From the Atlantic to the Mississippi, dozens retain the position they occupy in this country. For our own parts, we are disposed to advocate some reform in the system of weights and measures. The numerous and altogether irreconcileable variations which occur in different localities, afford a ground for interference which has not the faintest parallel in the case of the coinage. And should the decimalisation of weights and measures be carried out, and take a firm hold of the people, the question of reforming the monetary system would then present a new and far more favourable aspect than at present. In the meantime, we trust the Government will adhere to the judicious position laid down by Mr Gladstone, when Chancellor of the Exchequer:—"The present arrangement of the currency . . . is so wound up in the habits of the people, that it would not be desirable to have recourse to any change in it, unless we had clear evidence that it was one the people themselves required and understood."

In parting, we may be allowed to express our unfeigned respect for the talents, and admiration of the disinterested zeal of such men as Professor De Morgan. Actuated by a simple desire for the public good, they have laboured hard for years, with a devotedness scarcely exceeded in cases where a personal end is the guiding principle. The present is the only one of their pursuits in which we do not heartily wish them success.

ART. VII.—1. *The Ogilvies:* A Novel. Cheap Edition. Revised. Chapman and Hall. 1855.
2. *Olive:* A Novel. By the Author of "The Ogilvies." Cheap Edition. Revised. Chapman and Hall. 1857.
3. *The Head of the Family.* By the Author of "Olive," "The Ogilvies." Cheap Edition. Chapman and Hall. 1858.
4. *Agatha's Husband.* By the Author of "Olive," "The Ogilvies," "The Head of the Family." Cheap Edition. Chapman and Hall. 1858.
5. *John Halifax, Gentleman,* 3 vols. Hurst and Blackett. By the Author of "The Head of the Family," etc. 1856.
6. *Nothing New.* Tales by the Author of "John Halifax, Gentleman, 2 vols. Hurst and Blackett.
7. *A Woman's Thoughts about Women.* By the Author of "John Halifax." Hurst and Blackett. 1858.

IT is clear that, hitherto at least, feminine ability has found for itself a far more suitable sphere in novel-writing than in any other branch of literature. Among English or American authoresses we doubt if any, with perhaps one exception, have achieved for themselves a permanent place in the history of English literature, who are not novel-writers; and even the failures belong chiefly to the same class, though some few of the latter have been made in the field of poetry. Miss Burney, Miss Edgeworth, Miss Austen; Mrs Inchbald, Mrs Radcliffe; Miss Martineau, Mrs Marsh, Mrs Gaskell, Miss Bronte, Miss Muloch;[1] Miss Sewell, Lady Georgiana Fullarton, Miss Yonge; Miss Sedgwick, Miss Mitford, and Mrs Stowe, are most of them remembered exclusively—all of them, even Miss Martineau, mainly—by their fictions. Even Mrs Browning's greatest work, Aurora Leigh, though full of poetic power, has been termed, with great truth, a "modern novel in verse," so full is it of that circumstantial descriptiveness—so to say—in dealing with mood, scene, and incident, which properly constitutes the novel as distinguished from the poem. Still, if we except Mrs Browning, and as some will think, Joanna Baillie and Mrs Hemans, there remains, we believe, not a single woman's name of distinction in the field of

[1] We ought to add to this group the less generally known writers, the Baroness Tautphæus, the lively and skilful English authoress of "The Initials," "Quits," etc.; also the authoress of "Lena," "Kingscope," etc.; and, lastly, the authoress of "A Lost Love," published under the pseudonym of Ashford Owen. The imagination that gave birth to Lena, Kingscope, etc., has a vein of light humour, and a power of individualising the *superficies* of character not surpassed by any writer but Miss Austen, though her fictions skim only the surface of life. The last mentioned writer has written but one short tale; but yet a tale of rarely-equalled beauty, pathos, and power.

English literature, which is not mainly associated with the novel. The reason is perhaps not very recondite. The purely human interests of life, the daily incidents, the circumstantial joys and sorrows, occupy largely the thoughts of women; and what occupies the thoughts works in the imagination. If, at any moment, the reveries of all the men and all the women in England could be laid bare to us, there can be little doubt that the latter would be found filled, for the most part, with pictures, memories, or hopes of *visible* human life,—men, women, or children, in actual or possible costume, with faces sad or happy, in the midst of daily wants or luxury, in the crisis of some great or little emergency, or the enjoyment of some long-desired blessing. But not so with the men: in their minds a curious mêlée of interests half abstract, and where they were not abstract, often at least less about persons than about things. You would find in them queer visions of books, ballot-boxes, 3 per cents, bank-reserves, railway regulations, cotton bales, rights of electors, race-courses, courts of chancery, points of evidence, and again, considerations about kings, and wars, and statesmen, past and present, telegraph-cables, attractions of gravitation, planetary orbits, laws of metre, laws of thought, and laws of harmony. And, as are the common thoughts of men and women, so are their imaginative powers. The former have more power to conceive anything, we will not say merely *abstract*, but that requires some withdrawal of the imagination from the human *dress and circumstance* of life; while the latter have more skill in elaborating fresh combinations of human incidents—that flow of event which is one of the greatest necessities of the writer of fiction. It is for this reason we conceive that women have not yet succeeded as poets. Poetry is concerned, it is true, mainly with the creation of living and breathing life, yet it certainly requires a power akin to the power of abstraction. The poet must penetrate and battle for a time, nay even *live*, far beneath the surface of life, in order to create fine poetry. Not that he can neglect any visible expression of deeper wisdom that is written on the surface of the universe, but that he must decypher and interpret it. It requires an effort, something of a spiritual mood, to plunge into the pure beauty of true poetry. And though women have usually finer spiritual sympathies than men, they have not the same power of concentrating their minds in these alone, and living apart in them for a time, without being disturbed by the intrusive superficialities of actual life and circumstances. Their imagination is not *separable*, as it were, in anything like the same degree, from the visible surface and form of human existence; and hence, such poetry as they do usually write, is apt to be mere personal sentiment without any token of true imaginative power at all.

Women's imagination, wherever it is really vivid, delights in conceiving character as it is seen in the full dress of circumstance and the slow evolution of narrative.

We propose to discuss shortly, the main characteristics in which feminine fictions, as distinguished from those of men, are strong or defective, with some detailed illustrations of our remarks from the agreeable and skilful novelist, whose books we have put at the head of this article. Indeed, her fictions have led us involuntarily into this line of thought: to say nothing of her latest and only didactic work, in which she discusses so carefully the sphere and limitations of women's powers, her novels are in every respect typical of the special advantages and special disadvantages which a woman, as such, has for the task of representing the various aspects of human life in the form of a fictitious narrative. Not that she has reached so high as some others of her feminine contemporaries; but that, perhaps on that very account, she represents more adequately the kind of faculty which is either potential or actual in most clever women, and disturbs us less with marks of that signal individual genius, which is only misleading if we suppose it to have any special connection with sex at all.

And first, we may notice a characteristic difference between the narrative element in the fictions of feminine and of masculine writers. The former identify the reader much more closely with the current of the story than the latter, who always recall to you, by occasional glimpses of the intellectual canvass on which they paint, that it is but a picture, an effort of the artist's thought, after all. You can always see a kind of intellectual framework, of some sort, in a man's novels, which tells you that the unity is given rather by the mind and conception of the narrator, than by the actual evolution of the story. Feminine novelists never carry you beyond the tale they are telling; they are a great deal too much interested in it. But with men, you can see that some more general idea has governed the artistic composition; some desire, as in Sir Walter Scott, to contrast local customs, or a grand historic age, with modern civilization; some general creed about human nature, such as Mr Kingsley is ever intruding into his tales; some general satiric vein of feeling, like that which animates and gleams through the interstices of Fielding's and Thackeray's sketches; some vague philosophy, such as that which looms through Goethe's and Bulwer's novels; some genial scorn for prevalent cant, like that which impels Mr Anthony Trollope to illustrate and expose "reform-cries." It is quite different with ladies' novels. Sometimes, indeed, as in those of Miss Sewell, Miss Yonge and Lady Georgiana Fullarton, or, as in our author's *Olive*, there is an effort to inculcate some faith. Sometimes, again, as in Mary Barton, or Miss Martineau's tales, some social

theory is advocated or assailed. But, nothing can be more different than the effect produced in such cases, and the effect of the broad intellectual framework of masculine novels. With the authoress, the didactic or other purpose is wholly imbedded in the tale; it does not come out in the shape of the author's generalizations and comments, as in the other case, but enters into the very texture of narrative, as the moral assumption on which alone the characters are intelligible. There is rarely any wide background to a woman's tales, which tells the reader that there is a whole outlying world of thought which cannot be introduced *into* the tale, and which is yet suggested to the writer by the story told. With all our great masculine novel writers, the tale is a kind of living illustration of what the writer conceives to be the ruling principle of some special time, place, or system of things. And these principles are continually reappearing, to remind you, that the organized world of the narrator is but a picture drawn according to the laws which rule the writer's imagination. When a lady, on the other hand, wishes to be instructive, she creates a second self among the dramatis personæ of the story, and is quite content to lecture her fictitious world through that medium alone. Masculine writers cannot apparently brook this restraint. Their reflections are too wide for it. Mr Kingsley, for instance, has never scrupled to attribute his own peculiar convictions even to the most unlikely heroes,—Jews of the fifth century, and sailors of the Elizabethan age. But, even this does not content him; and he bursts forth into directly personal dissertations on the points which most interest him, so that you discern at once the primary world of thought on which his secondary world of fiction is based. So, too, Sir Walter Scott is always appearing in his own person, to contrast the different historic features of different periods, and the relative worth of the society he is at the moment describing, and some modern state of society he is, by implication, criticising. Dickens is, perhaps, the only great masculine writer whose genius has no disposition to generalize on the people and things he describes. Whenever he attempts it, you say that his criticisms are spurious second-hand reflections. Indeed, the type of Dickens' genius is, in many respects, feminine. Like most women's genius, it is founded on delicate powers of perception alone, though lighted up with something broader than feminine humour. There is no intellectual background to his pictures; and in this respect, he resembles the numerous authoresses of modern English fiction.

As a question of artistic effect, it may fairly be disputed which class of production is the better. There can be no doubt that the interest is the more intense, where the tale does not in any way introduce the writer's thoughts or comments upon it. Miss Bronte could never rivet us as she does, if, like Mr Trollope, she

had general observations to offer at the beginning of each chapter. Then, as a natural consequence, the authoresses *believe* so much more intensely in their own stories. The habit of generalization is scarcely compatible, indeed, with that intense interest in circumstance and pleasure in writing out the small effects of circumstance, which are essential to the proper *cohesion* of a plot. In reading *Olive*, *the Head of the Family*, *John Halifax*, and *Agatha's Husband*, no one can fail to be struck with the neat welding together of the smaller elements of the story, when you compare them with the broad and awkward transitions by which you pass from scene to scene, of many far greater novelists. This we ascribe very much to the complete *insulation* of the interests of the feminine novelists in the story they are telling. The general ground-ideas of such writers as Scott or Fielding, determine the plot according to a different law. The former feels obliged to make it include some great figures and great scenes; and he passes from scene to scene often almost *per saltum*, as far as regards the tissue of events, filling up the interstices of the plot as best he can. Fielding, again, is eager to develop certain well-defined social types of character, and to illustrate certain general observations on life; and these must come into the story. Mr Kingsley's narratives, again, are constructed on an intellectual law, in which circumstance does not grow out of circumstance, but the previously appointed effects have to be linked together by any scheme however artificial. It is quite different with most lady-novelists. They really think out the *subordinate elements* of the plot, and link them according to the suggestions of circumstances, and not according to the moral exigencies of the writer. The consequence is, that while there is something freer and broader about the *effect* of masculine novels, the interest is certainly looser—concentrated at fixed points, and not equally distributed through the narrative. In women's novels, on the other hand, you see the artist less, and the windings of circumstance more. You have less sense of contrast; in short, altogether a narrower and less intellectual horizon, but you have more sense of the present reality of the circumstances detailed. You are more identified with the story; more immediately oppressed by the perplexities which arise; while, at the same time, they are associated with a less extensive range of interests. The interest is more immediate, but also more transitory. There are no general landmarks of thought by which the story is marked out, and retained for ever in the memory. Like the pressing and painful interests of daily life, they pass away as soon as they are solved, if they be painted on no wide background of general interests.

There is another point closely related to the last, in which the narrative part of masculine differs from that of feminine novels.

The characters, as intellectual studies, predominate often too much in the former, over the claims of the narrative itself. They are brought out in connection with subjects or incidents which have little or no bearing on the narrative. This is a fault which ladies rarely, if ever, commit, mainly because they study character principally in its *bearing* on the happiness or unhappiness of others. Our authoress, for instance, seldom or never introduces a scene which has no connection with the movement of the story; and women almost always wind off character, as it were, into incident that is capable of constituting a link in the narrative. Not so, men. Mr Thackeray's "Virginians," for instance, has almost *stood still* for eleven numbers, while he has been leisurely exhibiting the paces of his different characters. Dickens, though his interest in his characters is not intellectual but humorous, does exactly the same. Bulwer has far more of narrative power, more of constructive genius, in his plots. But, on Sir Walter Scott himself, the same fault is often chargeable; that is, there are great *intervals* of paralyzed interest. In Goethe's novels, this fault is exaggerated almost to the ruin of the story. We do not think it applies to any one eminent feminine novelist. The circumstantial interest is far too keenly conceived. The narrative really goes on.

On the whole, we do not know that we can say that our feminine novelists excel their masculine contemporaries in their plots. In many respects they do. In the close texture and welded interest of the whole, they do eminently. But their defect is, that the interest usually turns on too small and artificial a point, which is rarely the case in masculine novels. Protracted misunderstandings, morbid impressions, that one hour of natural intercourse would sweep away in real life, promises that no right-minded hero or heroine would make; or, if they were to make, would think it right to keep, are too often at the basis of a lady's story. Thus, in what is as regards the central female character the best, we think, of Miss Muloch's novels,—*Agatha's Husband*, we find a plot which reminds us almost of the unhealthy and morbid misunderstandings which are woven together in the didactic novels of Miss Edgeworth. Instead of bringing the interests wholly out of the natural passions and natural virtues of the leading characters, a promise to keep a secret for a year is introduced, on the adherence to which everything depends. This is so unwholesome a device, that the moral nature of the reader revolts against it; and a novel, which has some really fine features, is partly spoiled. Indeed, the defect in all the plots of this authoress is a certain want of breadth about the leading interest. *The Ogilvies* is too young a production to invite criticism. In *Olive* and *John Halifax* the defect takes this form, that a small

number of successive plots are threaded together in place of a single comprehensive plot. *John Halifax* is a fictitious biography, rather than a novel. Two generations are introduced; and there is more than one point at which the interest of an epoch is fully satisfied, and a new novel, as it were, has to be begun. The same defect, in a less degree, exists in *Olive*. There is first, the interest, never fairly worked out, of the unsuitable characters of Olive's father and mother. The reader is led to believe that Olive will be the reconciling spirit between them. But the father dies, leaving a subsidiary plot behind him, and then the interest turns chiefly for a time on Olive's endeavours to lead the life of an artist. This period also comes to an end; and the proper interest of the novel begins in the history of Olive's attachment to the man whom she subsequently marries. *The Head of the Family* has more unity of interest; though, to our mind, the characters are less true and more melo-dramatic than those of the other novels,—*The Ogilvies* excepted. We have no superstitious regard for unities. But, it is obvious, that in a work of art, different centres of interest and different groups of events, should not be artificially amalgamated into one work. In a real biography the interest lies in seeing the whole issues of a single life; and the reason for threading together periods which, as artistic effects, are complete in themselves, is obvious, namely, —that in real life, and by one greater than any artist, they were so threaded together. But there is no such excuse for a fictitious biography that does not form an artistic whole. The only reason the author can have for any delineation is, that the imagination has given birth to it. And if the imagination gives birth to three different and severally complete narratives in connection with the same character, they clearly ought to be delineated in three different and severally complete works of art. The publisher may demand three volumes of one work. But, if the imagination refuses to conform, to conceive a tripartite whole, and conceives instead three distinct wholes, the publisher should be set at naught.

We have said enough about the *narrative* aspects of feminine and masculine fictions. We have much more to say on the essential characteristic in all fictions,—the delineations of character;—in which respect again our present authoress represents fairly, we think, the characteristic powers and deficiences of the deeper feminine school of modern fiction. In many ways, the natural limitations of feminine power are admirably adapted to the standard of fiction held up as the true model of a feminine novelist in the last century. It was then thought sufficient to present finished sketches of character, just as it appeared under the ordinary restraints of society; while the deeper passions and spiritual impulses, which are the springs of all the higher drama

of real life, were, at most, only allowed so far to suffuse the narrative as to tinge it with the excitement necessary for a novel. To sound the depths and analyze the secret roots of individual character, after the fashion of the modern school—Miss Bronte for instance—would never have been thought a legitimate or possible aim by Miss Edgeworth or Miss Austen. They lived in a time when it was not a universally accepted fact that this unexplored world existed at all in "well-regulated" minds; and certainly in a time when it would have been most unusual to reanimate such a world in the light pages of fiction. And, in many respects, the writers we have named, gained by the restriction thus laid upon their aims. In completeness and harmony no feminine fiction-writer has ever approached Miss Austen: and we do not doubt that if Miss Austen were living now, and attempted to create new works more in conformity with the deeper wants of the day than the exquisite and humorous, but very tranquil and somewhat limited, sketches of character which she has left us, she would produce works of less artistic harmony, of less finished proportions than those which have given her so high a place in English literature. The aim of Miss Bronte was indefinitely wider and deeper than that of Miss Austen, and few would venture to say that, in its way, her genius was not of as high an order; yet no one can hesitate for an instant to pronounce that there is far less proportion and equality of success in the artistic results in Miss Bronte's case, than in that of her predecessor. Nor can we adequately account for this by saying, that the higher the attempt the oftener will the execution fall short of its aim. We believe there are deeper causes at work, and causes, the operation of which are so clearly illustrated in Miss Muloch's own case, that we shall not hesitate to discuss them.

The natural forte of women, as writers of fiction, is, fine perception of individual traits of character, a ready power of conceiving new combinations of what they have observed, and of delicately delineating what they have conceived. But, as a rule, they evince very little power of imagining the whole *unseen interior* of the character in conformity with the conception they wish to give to its social aspects. We scarcely know of any exception to this rule among our female novelists. Miss Bronte indeed, Miss Muloch to some extent, and many others, paint with considerable depth and detail the interior of *one* character—usually the centre-character of the novel—which is obviously taken from the artist's own experience. But while this central character is deep and vivid, those which come into connection with it are either mere sketches, not so fully conceived as Miss Austen's, or very frequently unreal and unsuccessful attempts at

something deeper. The result is, a certain disproportion of effect that is somewhat distressing in a work of art, and which can only be justified by the autobiographic form, which accordingly is becoming, since Miss Bronte's time, so common in fiction, since it alone seems to suggest good reason for the elaboration of a central figure, and an external treatment of all the others. This form is openly adopted by our authoress in *John Halifax*, and adopted in effect, though not in form, in *Olive*, and almost again in *Agatha's Husband*, which are, we may perhaps say *consequently*, her three best works. But unless all fiction is to be moulded in future in the autobiographic form given to it by Miss Bronte,[1] we must be content to accept from our various skilful authoresses either fictions of very irregular finish and power, or of very limited scope in the breadth and depth of character delineated.

It may seem a harsh and arbitrary dictum, that our lady novelists do not usually succeed in the field of imagination, properly so called—the creation of the unseen side of character in conformity with the traits delineated as representing it to society. Yet we are fully convinced that this is the main deficiency of feminine genius. It can observe, it can recombine, it can delineate, but it cannot trust itself farther: it cannot leave the world of characteristic traits and expressive manner, so as to imagine and paint successfully the distinguishable, but not easily distinguished, world out of which those characteristics grew. Women's fancy deals directly with *expression*, with the actual visible effects of mental and moral qualities, and seems unequal to go apart, as it were, with their conception, and work it out firmly in fields of experience somewhat different from those from which they have directly gathered it. Thus no woman, we believe, has ever painted men as they are amongst men. Their imagination takes no grasp of a masculine character that is sufficiently strong to enable them to follow it in imagination into the society of men. We have two remarkable and recent illustrations of this fact. One is in Miss Bronte's posthumous novel, *The Professor*, the materials of which were very wisely thrown by her into a much more artistic form in *Villette*. It is quite obvious to any reader who attends to the sketch of the character of the Professor, that the Professor is a woman in disguise,—as indeed she proves to be,—for she is quite properly stripped of her male costume, and turned into "Lucy Snowe" in *Villette*. There is a shyness, a sulky tenderness, and a disposition to coquet manifest in the Professor's relations with his friend the Yorkshire manufacturer, which betrays to us at once that the

[1] In all her novels except *Shirley*, which is accordingly, we think, much the least successful of the series.

picture is drawn from a lady's experience of her friendships with the other sex, and not from any genuine insight into the character of mutual masculine attachments. The same curious inability to conceive of men as they are in relation to each other, is shown in our authoress's clever and delicately conceived tale of *John Halifax*. In that tale she unwisely takes up her point of sight in the mind of a man,—a delicate, gentle valetudinarian, it is true, which gives her every advantage; but still she fails in catching even the general attitude and bearing of masculine friendship. During the early part of the tale, it is difficult to suppress a fear that Phineas Fletcher will fall hopelessly in love with John Halifax, so hard is it to remember that Phineas is of the male sex. Afterwards, when he professes to be an uncle, the reader is aware constantly that he is really an aunt, and a curious perplexity is apt to arise in the mind on the subject. Lest it should be thought that we exaggerate, let us extract one or two passages in which Phineas Fletcher expresses his feelings towards his friend John Halifax. It is scarcely possible to persuade one's self that the tender, devoted manner in which courage comes for the first time in thinking and acting for another, and the self-sacrificing resignation with which all monopolising desires are resigned on the glimpse of that other's dawning passion,—are not taken from the experience of a mother, or at least a sister, very thinly disguised under the masculine pretensions of Phineas Fletcher.

"My father was not to be seen; but I ventured to leave word for him that I was gone home, and had taken John Halifax with me. *It was astonishing how bold I felt myself growing, now that there was another besides myself to think and act for.* . .

"That long quiet Sunday, when I remember the sun never came out all day, but the whole earth and sky melted together in a soft grey haze; when we lay on the common, and heard church-bells ringing—some distant, some near; and after we were quiet, talked our own old Sabbath talks of this world and the world to come; when towards twilight we went down into the beech-wood below the house, and sat idly thus amongst the pleasant-smelling ferns; where, from the morning to the evening, he devoted himself altogether to my comfort and amusement, to perfect which required of him no harder duty than to be near me always;—that Sunday was the last I ever had David altogether for my own—my very own.

"It was natural, it was just, it was right. God forbid that in any way I should have murmured."

But even in relations less special and one-sided than these, feminine imagination, properly so called, is apt to fail. It is not from any disposition to carp at Miss Muloch's writings, but rather from a desire to clear at once our critical conscience of all the real sense of shortcomings, before we come to the more congenial task of

appreciation, that we refer to another illustration of the characteristic deficiency which is apt to run through all women's novels, when they attempt to draw scenes, the higher elements of which must be taken from the resources of a powerful imagination thoroughly steeped in the conceptions to be delineated, rather than from close observation and a delicate fancy. One of the cleverest sketches in what we conceive to be quite the cleverest and most vigorous of our authoress's works, is the character of Major Harper in *Agatha's Husband*. The vanity, real sensitiveness, superficial tenderness, honourable sentiment, genial conversational ease, and fundamental weakness of the man, are all admirably drawn. We know no minor sketch of this authoress so skilfully finished. But in the only scene where she carries her conception among the influences of intense passion,—where the imagination alone, grasping its own thought, was called upon to continue it into a sphere beyond the range of ordinary observation, she wholly fails. Major Harper has proved an unfaithful trustee of his ward's property. He himself has been, and is, humiliated to the earth by the sense of his delinquency. His father, an austere old gentleman of the unforgiving school,—finely drawn, especially in the scene in which he is represented as finally sinking under the blow,—has discovered his son's conduct, revoked the will in his favour, and died from apoplexy, not without an inarticulate reconciliation, but without altering his stern decision. The scene to which we refer is that in which Major Harper learns that he is disinherited, and that his brother, Agatha's husband, who has all the strong principle that he wants, and wants all the ease and geniality of character that he has, is to take the estate instead. Every reader who has followed with admiration the sketch of Major Harper, must feel that it here loses all its outline, and fades away into the unprincipled "evil genius" of stock novelists. He will feel that our authoress's imagination utterly failed her when she attempted to carry the character she had so well sketched into a world of deeper passion. Had she been able to penetrate from the external phases of her conception to the mental world that alone could underlie them, she would have felt that the irritable vanity, the fine sense of shame, the love of approbation, and the general weakness rather than passionate evil of Major Harper's character, were utterly inconsistent with the demeanour she has here portrayed. Some flush of mingled shame and resentment he would no doubt have felt, but it would not have led him to contest, but to acquiesce bitterly, and, with ostentation of dissembled congratulation, in the changed will of his father: his own sense of dishonourable conduct was far too keen and clear to admit of any self-assertion, beyond that which would have been implied in the short manner

of feigned satisfaction; and the superficially warm impulses of the man would have sustained him throughout such a scene.

If we were asked to account for this deficiency of what we may call proper *imaginative* power in women's novels, we should ascribe it to that very absence of anything like a capacity for abstract intellectual study, which is sometimes, and quite justly, conceived to spoil masculine minds for undertaking similar works of art. But the truth is, that a certain element in what is usually called the power of abstraction, is absolutely requisite to a vigorous imagination. If we accustom ourselves to think of science as dealing with abstractions,—that is, with laws and single properties of things, not with the living things,—then no doubt an abstract intellect is the last in the world for the creation of character. But the same habit of mind which enables men of one set of tastes to withdraw their thoughts from all but one class of phenomena, and to fix them intensely on that class of phenomena, also enables men of another set of tastes to withdraw their thoughts from the mere external *symptoms* of character, and meditate deeply on the living realities which lie beneath. Now this is what feminine novel-writers do not seem able to do. They cannot withdraw their thoughts sufficiently from the outward traits by which they distinguish their conceptions, to realise adequately the mental personality. In all great masculine novel-writers,—except Mr Dickens, who, with all his genius, is in some remarkable points feminine,—you see how good an influence the masculine power of abstraction has on the imagination. The same mind that has been trained to go apart with laws of matter, and laws of wealth, and laws of intellect, and to elaborate them as if no outer world for the time existed at all, also enables men to go apart with conceptions of character—when they have any, which is certainly less frequent than in the case of women,—to sound deeper depths, pursue their thoughts into newer fields, and discover subtler analogies. Thus it happens, we believe, that the lighter treatment of character,—the superficial treatment, so to speak,—is done far more perfectly and delicately by women; while in passionate tales, that require a certain thoroughness and vigour of ideal imagination, they are almost always apt to fail.

There is another indication of the same want of substratum in Miss Muloch's sketches of character. Like Mr Dickens, when she has noted a certain peculiarity, she thinks she has caught the whole character, and somewhat sickens us with constantly recurring to the same monotone. Professor Reay in the *Head of the Family*, Marmaduke Dugdale in *Agatha's Husband*, Michael Vanbrugh in *Olive*, are all of them impossibilities, caricatures without humour; and yet all of them are well conceived

and delineated in the first instance, had they not been crystallised there and then in eccentric attitudes, from which they are never suffered to emerge. Miss Muloch's conception of a scientific man is an especially womanish caricature. Because Kenneth Reay cares for geology and astronomy, and is always ready to talk about the geological formation of the Campsie Hills, or Dumbarton Rock, why need he be represented as suggesting "great circle sailing," when he is near being swamped in a boat on Gare Loch? It may be an eccentricity to be scientific, in a woman's eyes; but even an eccentric man is not a delirious man, and is usually sobered by the very practical question of how to avoid drowning. Marmaduke Dugdale, again, raves in like manner about free trade, and Vanbrugh about art. It is an error in Miss Muloch to suppose that no man can have any strong abstract interest without being quite unequal to attending punctually to his meals, and understanding generally what money is worth. The sense of *meals*, especially, is deeper in the abstract mind than Miss Muloch supposes. In Miss Muloch's novels there is always some practical lively wife or sister to flutter about such a hero, and supplement his deficiencies. In fact, however, it might well be found that these airy beings were quite as much incapacitated for practical tasks by their levities of character, as the men, for whom they provide, by their abstruser studies.

One more piece of fault-finding, and we have done with this disagreeable side of our duty. We must observe that Miss Muloch's feminine "ideal," the suffering and resigned angels of her tales, are very feminine conceptions indeed. What we object to in the characters, is not their excellence, or resignation, but their want of practical vividness. They are the incarnations of a sentiment, not living figures. Anne Valery, in *Agatha's Husband*, is excessively distressing in this respect. Compare her with Mrs Gaskell's wonderful sketch of "Miss Matty" in *Cranford*. She, too, has been, and is, in love; she, too, has a sore place in her heart. But this is not constantly uppermost. She becomes tender-hearted over old letters; but she is interested, deeply interested, in the fashions of the day,—in gossip, in little kitchen arrangements,—in short, she is bound to the present as well as to the past. But Miss Muloch's suffering women live only "for others;" the "beautiful light" is always on their faces; their hands "work spasmodically" at least once in every two or three chapters; they are never suffered to surmount their griefs quietly, and take living and characteristic interests in the living world. Even the natural silences of human nature are too often compelled to be "full-hearted" in Miss Muloch's tales. Here, however, she is guilty of a feminine weakness into which not by any means all her sister-authoresses have fallen. We have now

carped enough, and will point out some of the characteristic and *representative* feminine excellences of Miss Muloch's novels.

There is nothing more difficult than to paint the *growth* of a character. No masculine novelist, that we know of, has ever done so successfully, except Goethe and Thackeray,—men whose microscopic and flexible genius has rendered the secrets of mental expansion as open to them, as was the "metamorphose" of the seed into the stalk, leaf, and flower, to the poetic science of Goethe. If a child be finely drawn, like little Paul Dombey, for instance, in Dickens's tale, he must die to solve a problem too hard for the artist's genius. David Copperfield himself, admirable as a child, fades away into a very faintly outlined character. Even Miss Bronte could not develop the wonderful character she had sketched in the little "Paulina" of *Villette*, and the grown-up young lady would be recognised by no one. But we may notice in the novels of our best lady novelists much more of this continuous flexible delineation. Miss Yonge has succeeded in delineating admirably the growth of character in her extraordinarily clever, though rather uninteresting tale, called "The Daisy Chain." You see many of the characters grow before your eyes. Miss Sewell has succeeded in the same attempt in the *Earl's Daughter*, and some of her minor tales; and success of this kind is intrinsically suited to the patient and pliant genius of women. By our greatest novelist, Sir Walter Scott, the attempt was never made. He grasped firmly a strong and vivid conception, and vivified it with wonderful power; but his genius was too essentially masculine, his eye too graphic, as it were, to attempt so subtle a province of his art as this. Indeed, it does not usually accompany strong pictorial genius. A mind haunted by a *picture* will represent its conceptions always in the one striking attitude in which they have conceived it. Hence, perhaps, Mr Dickens's failure to delineate any mental or moral growth. Hence also, perhaps, Miss Bronte's, who photographs her characters just as she sees them, but presents us with a series of daguerreotypes, rather than a continuous moral history. Miss Muloch has much of this feminine power. She can mark, with delicate continuity and real success, the various graduations of moral experience through which some of her finer conceptions grow to maturity. True, she shows this power most in delineating characters which must be, more or less, drawn from her own experience—in drawing the character of Olive, (evidently to some extent of this nature), and, most successfully of all, in the admirable delineation of the opening out of the heroine's character in *Agatha's Husband*. The vacancy of purpose with which an active-minded and notable, but not very sentimental, damsel is afflicted; the mode in which her mind is gradually lighted up by the *desire*

for affection first, and its reality afterwards; the art with which the shadow of a stronger character is represented as falling upon and fascinating her own,—constitute a series of pictures of very great and unusual interest. She marries rather from the trust and gratitude with which she is inspired by the resolute character and deep passion of her husband, than from any matured attachment. It is the object of the novelist to illustrate the trial so brought upon herself and her husband, and, at the same time, the natural influence of such trial in deepening this elementary affection into one of absorbing power.

Akin to this power of exhibiting the gradual growth of character, which is, if not exclusively, still in great degree, a feminine gift, is that other power which Miss Muloch also possesses of giving, in the widest sense, *purpose* to her fictions, without in any way making them didactic. There are three classes of fiction, distinguishable with respect to the *use* made of the narrative or circumstantial element. The lowest class, in an artistic point of view, is the *didactic* fiction, which so manages events as to point some very obvious moral, making all the mysterious complexities of life converge upon the punishment of some carefully selected fault, and the reward of the corresponding virtue. This is so obvious a falsification of the truth, that it has often produced a reaction in favour of what we may call the *indifferent* school of fiction, in which events are simply used to bring out and illustrate character, without affording any insight at all into the deeper moral and spiritual purposes of life. This is artistically faulty also; because, when life itself is so full of profound discipline to all men, the art which reproduces life should not leave out the deepest elements it finds there. At the same time, it is a necessary fault in all novelists who have not the power, of which we have spoken, of exhibiting the *growth* of character. If it is beyond the power of an artist to do this, if he can only exhibit successfully what we may call *stationary* types of character, then he must omit all the moral and spiritual lessons of Providential event. For these do not usually consist in visiting the meritorious action with immediate and visible reward, and punishing evil with immediate and visible suffering; but rather in that gradual expansion and deepening of character which is the result of accepting the moral alternatives presented to men in the right spirit, and that gradual contraction, or even corruption of character, which is the result of accepting those alternatives in the opposite spirit.

Now, we confess to preferring greatly what is here termed the *indifferent* school of fiction, to that which presses all the resources of art into the service of some small item of penal discipline or rewarding justice. It is a higher thing to exhibit even stationary

types of character truly, than to misrepresent the Providence of life after the fashion of the didactic school of novelists. Nevertheless, it is higher still to represent, after some more or less complete fashion, the true Providence of life, which can be done by those who have the happy art of displaying the *growth* of any class of minds beneath the influence of events. This it is which Miss Muloch attempts, and has, indeed, with more or less success, achieved. She attempts to show how the trials, perplexities, joys, sorrows, labours, and successes of life, deepen or wither the character according to its inward bent. She cares to teach, *not*, how dishonesty is always plunging men into infinitely more complicated external difficulties than it would in real life, but how any continued insincerity gradually darkens and corrupts the very life-springs of the mind: *not*, how all events conspire to crush an unreal being who is to be the "example" of the story, but how every event, adverse or fortunate, tends to strengthen and expand a high mind, and to break the springs of a selfish or even merely weak and self-indulgent nature.

This highest purpose has evidently guided Miss Muloch throughout her artistic career; and we are happy to observe its influence in a direction in which she is probably not fully conscious of it herself,—the clearing away of a certain vein of turbid rose-water sentiment which deluged "the Ogilvies," and is not imperceptible even in her best and ablest tales. Her deeper study of life, for artistic purposes, has taught her that, in all genuine growth of character, this morbid element is rapidly absorbed and disappears. *John Halifax*, if not absolutely her most powerful tale, is certainly clearer from this consciousness of sweet feeling than any other, except *Agatha's Husband*, and contains broader sketches of the influence of ordinary and casual incident on the discipline of a vigorous mind. It has, so to say, a wider horizon. She does not limit herself in it to domestic conversations, and the mere shock of character on character: she includes a larger range of events,—the influence of worldly successes and failures,—the risks of commercial enterprise,—the power of social position,—in short, the various elements of a wider economy, than anything she had hitherto admitted into the scenery of her tales. If she were less fond of nursing her sentiments,—dwelling on the "fatal woman-heart," and such like mawkish moods of thought,—she might easily attain a far higher place in the literature of the day than she has ever yet reached. She has a true respect for her work, and never permits herself to "make books;" and yet she has evidently very great facility in making them. There are few writers who have exhibited a more marked progress, whether in freedom of touch or in depth of purpose, than the authoress of "The Ogilvies" and "John Halifax."

ART. VIII.—1. *Minutes of the Committee of Council on Education; Correspondence; Financial Statements, etc.; Reports by Her Majesty's Inspectors of Schools.* 1857–8.

2. *The Twenty-Third Report of the Commissioners of National Education in Ireland (for the year* 1856). With Appendices. 2 vols. 1858.

3. *Evidence taken before Her Majesty's Commissioners of Inquiry into the State of the Endowed Schools in Ireland.* 2 vols. 1858.

Papers accompanying the Report of Her Majesty's Commissioners for Inquiring into Endowed Schools in Ireland. 1 vol.

Report of Her Majesty's Commissioners appointed to Inquire into the Endowments, Funds, and Actual Condition of all Schools Endowed for the Purpose of Education in Ireland. 1 vol. 1858.

4. *Letter to the Right Hon. Sir G. Grey, Bart., M.P., G.C.B. By Arch. John Stephens, Esq., one of Her Majesty's late Commissioners of Inquiry into the Endowed Schools of Ireland.* London.

5. *Essays upon Educational Subjects.* (Read at the Educational Conference of June 1857.) *With a short Account of the Objects and Proceedings of the Meetings.* Published by Authority of the Committee. London. 1857.

6. *Punishment and Prevention.* By Alex. Thomson, Esq., of Banchory. 1857.

7. *The Reformatories, Refuges, and Industrial Schools of Great Britain and Ireland.* Published by the Committee of the Reformatory and Refuge Union. London. 1857.

8. *The State of our Educational Enterprises. A Report, etc., Prepared and Published at the Request of Gentlemen in Glasgow interested in National Education.* By the Rev. WILLIAM FRASER, Paisley. Glasgow: Blackie and Son. 1858.

THE Educational aspects of Britain and Ireland have, within the last thirty years, almost completely changed. A brighter period has dawned. Public instruction has taken a higher form, and given to the interests of the common school a National value; and although our condition is still transitionary and experimental, encouraging results are appearing. While it is not possible to point to a single legislative proposal dealing comprehensively with the Educational necessities of the country, which has not been the signal for energetic and wide-spread opposition, it is interesting to trace, through all, the silent yet continuous advance and elevation of public instruction. While politicians, ecclesiastics, and mere speculatists, have been doing zealous—often disgraceful—battle over the shibboleths of competing abstractions,

earnest workers, devoting their fortune and talents to the interests of Education, have broken in upon the olden apathy and routine of the common school, and given to its movements new life, buoyancy, and completer methods; and many a Christian association has been sparing neither expense nor toil to secure for the teacher higher scholarship and professional fitness, a better income, and a status in society worthier of his responsibilities. Great as have been the successes achieved by individual and associational energy, the Educational interests of the country have happily not been left to the contingencies of such necessarily isolated and desultory processes. The Committee of Council on Education, leaving Parliament and the country to discuss and re-discuss the vexed question of a National System, have, in great wisdom, laid hold of that power which, in this country, is unquestionably the most deeply-seated, the most generally diffused, and the most commanding in its action,—the religiousness of the people,—and have, to a large extent succeeded, chiefly through this instrumentality, in drawing into harmonious combination our hitherto scattered Educational forces, and in establishing a system which, in breadth and completeness of organization, and in the variety and liberality of its appliances, is such, notwithstanding many serious defects, as a few years ago could have scarcely been anticipated. The very power which has hitherto rendered the adoption of any National System impracticable, has, in the hands of the Committee of Privy Council, given such unity, strength, and elevation to our Educational agencies, as to make a formally Denominational System, virtually National.

The most recent Reports attest unabated zeal, and confirm this general statement. In Britain, there are now no fewer than 35 Training Colleges, efficiently equipped for the education of more than 2000 Students; there are upwards of 5000 Certificated Teachers, nearly 250 Assistants, and more than 12,000 Pupil Teachers. Constant inspection and competitive examinations give fresh impulse to the teacher, and fresh enthusiasm to the taught; and as the net-work of regularly inspected schools is gradually raised, it is drawing with it the surrounding schools not connected with Government. The diffusion of Educational benefit is thus becoming universal. Branching off from this regularly-organized common school system, are night schools, workhouse schools, industrial schools, with field-gardens and workshops for boys, and with washhouses and bakehouses for girls, ragged schools for vagrants, and reformatories for criminals.

In Ireland, there is one Normal College, in which are trained yearly between 300 and 400 Students; there are 12 District Model Schools, to diffuse educational enthusiasm, and exemplify the best methods, and upwards of 5000 National Schools. Inti-

mately associated with the National System, properly so called, is an Agricultural Experiment or supplemental system, thoroughly organized, and, apart from the question of success, carried forward with considerable enthusiasm. Its central institution is the Agricultural College, with its surrounding farm, to test new methods and exhibit ascertained improvements. Throughout the country there are 37 Model Agricultural Schools, "either in partial or full operation;" 51 Ordinary, and 77 Workhouse Agricultural Schools. The promoters of this experiment have for their object not only directly the agricultural improvement of the country, but indirectly the social elevation of the people. When it is borne in mind, that over the vast area occupied in Britain and Ireland by these school agencies, the best books, best maps, best diagrams, models, chemical and other apparatus are being gradually diffused; and that thus advantages long the privilege of higher class schools, are now accessible to the peasant's son; and, when we add to all this, the Educational benefits conferred in England by those who repudiate State aid, and in Ireland by the Church Education Society, the general result is eminently satisfactory, as representing Educational progress in the United Kingdom.

But this is not all. Well were it if the outline just given, fully exhibited our Educational condition, our difficulties would be lessened, and, in a great measure, removed. Beyond the light and life we have noted, there is a region of almost hopeless gloom. There is, in the *uneducated* and *uneducating* sphere, mass on mass, sinking and sunken, unmet and unmoved by all that philosophy, statesmanship, or Christian philanthropy has yet devised or applied. The Census Returns, admitting that they are only approximately accurate, dissipate the half-satisfying conclusion, long cherished by educationists, that the children not at school must be at work, acquiring at least habits of industry, and reveal to us the appalling extent of our social and moral heathenism. Hundreds of thousands, self-trained in streets and lanes, for future responsibilities, never hearing God's name save in blasphemy, and never knowing the "day of blessed rest," save by the tolling of the Sabbath bell, are growing up by the very door of the common school, scorning its privileges, and refusing to enter, though coaxed by legislative grants, books, medals, certificates, and an almost endless variety of prize schemes.

These two facts—the fact of a well-defined, yet expansive and accommodative organisation, rapidly improving the condition of the common school; and the fact of uneducated masses lying beyond all its appliances—give character to two classes of Educational discussionists. The one class looking too exclusively to the machinery in motion, and thoroughly satisfied with existing arrangements, deprecate any change: the other class look-

ing exclusively to the untaught masses, jealous of the character of their country, and in a great measure ignorant of present advantages, would sweep all aside for the sake of any National System, however low its religious tone, or defective its Educational equipment, obviously in the belief that there is in the National School some peculiarly attractive element not in the Denominational, to arouse the careless and win them to a practical appreciation of learning. These two classes—the one unduly magnifying, the other unduly depreciating, present advantages, and both ever sedulously ignoring the one chief and real difficulty, as presented in the all-pervading apathy of the sinking and sunken masses,—have hindered rather than promoted the adequate consideration of the whole question, and lessened the probability of a speedy and satisfactory solution.

Associated with no party, having no theory to elaborate or enforce, and feeling no interest in the legislative bearings of the question but those common to all who long to see established a National System worthy of their country's history, we propose to deal with both facts—we propose to review as fully as space permits, our leading Educational positions, acknowledging strength wherever manifested, exposing weakness or failure by whomsoever perpetrated and sheltered, and offering such practical suggestions for the institution of a National System and the inbringing of the indifferent, as the teachings of the past supply.

In the midst of the strictly Denominational agencies, fostered by the Committee of Privy Council, and of almost innumerable minor experiments, we have two well-defined exemplifications of a professedly National System, to assist us in our difficulties—the *Scottish Parochial*, and the *Irish National*—the one from Reformation times, the other of recent origin. To leave out of view the results which these histories present, is to extinguish the light of a distinct experience. In examining the influence of National Systems, we instinctively turn first to the Scottish Parochial Schools. We envy the Scot neither his Educational enlightenment nor his patriotism who can sneeringly cast out of view, in planning modern arrangements, a system remarkable alike for the wise policy which laid its foundation, and for the benefits which it has long conferred. The outline, drawn by the master-hand of John Knox, might, with modifications to meet our altered social and commercial condition, be easily made the basis of a model National System. We need scarcely remind the reader that the Reformers, though beset with almost insuperable difficulties, stipulated in the Third Book of Discipline, "that every several kirk shall have a schoolmaster," such a one as is able "to teach grammar and the Latin tongue," and made provision that the young be instructed in religious doctrine and duty. They

further required, apart from the universities "in the three towns accustomed," that "in every notable town there be erected a college, in which the arts, at least logic and rhetoric, together with the tongues, be read by sufficient masters, and for whom honest stipends must be appointed." After many a struggle, whose issues give no blazonry to the aristocracy of the time, but that of unblushing rapacity, the Privy Council directed, in 1616, "that in every parish of this kingdom, where convenient means may be had for establishing a school, a school shall be erected, and a fit person appointed to teach the same, upon the expense of the parochinares, according to the quality and quantity of the parish." This Act of Council was ratified in 1633.

We have thus, in the bold and comprehensive legislation of a period comparatively dark, an example for the present: we have a National System, recognising the value of a universally diffused education, which should unite with thorough intellectual culture, sound moral and religious instruction, meet all the necessities of the community by suitable schools, and the wants of the schoolmaster by an adequate salary, and provide for the efficient maintenance of the whole by compulsory local taxation.

But, unfortunately, the system was stereotyped: it made no provision for growth. Based chiefly on agricultural economy, and embracing the small towns of that time, as if as perpetually fixed in the number of their population as was the physical outline of every parish, its goodly proportions were destroyed by the populous cities which commerce created. Wanting elasticity and expansiveness, it had neither power to appropriate improvements, nor cast off accumulating corruptions. As the church and the civil courts became jealous of each other's authority, unseemly contentions followed, and in their wake, change and abuse. The chief gainer was the teacher; the church lost influence, and the Educational interests of the country suffered. The teacher's position became so strengthened, that the Presbytery cannot dislodge him because of incompetency and inefficiency however manifestly detrimental to the interests of the parish. The most incompetent, though for years with scarcely a pupil, can retain the school, the dwelling-house, and the stipend. In short, on the concurrent testimony of the witnesses examined before the Select Committee of the House of Lords in the Session 1845, it is evident that the authority of the Presbytery "to remove masters for neglect of duty, cruelty, or immorality, has become inoperative."

But, apart from the anomalies produced by commercial and other external changes, and by internal abuses, alterations have taken place, perhaps still more seriously affecting the nationality and efficiency of the parish school. The Established Church is much weakened. Repeated secessions have left only about one-

third of the population within her pale. Presbytery is still national, as embracing the religious communions of Scotland, but as embracing the Established Church, is merely sectional or fragmentary. The parochial economy is still national as to its territorial divisions, but as to its connection with the Established Church, it is thoroughly denominational; and as to its schools being open only to members or adherents of the Established Church, while deliberately shut against the teachers of other Presbyterian bodies, it must be held sectarian. As educationists, and apart from all ecclesiastical controversies, we deeply regret this policy, as most injurious to the interests of public instruction, unjust to the eminently qualified teachers of the other Presbyterian communions, and subversive of the original design of its institution as a parochial system under Presbyterial superintendence.

In so far as the public management and the internal economy of the parochial system are concerned, it is becoming more hopelessly exclusive than ever; the last vestige of nationality is being rapidly effaced, inasmuch as its schools are being placed by the Established Church and the Committee of Council on Education on the same *denominational* footing as the schools of other religious communions. On analysing the lists given in the Government minutes, we find that last year 173 parish schools were aided by Privy Council Grants, and this year 197. We do not grudge to see the teacher's salary increased; but we do regret to see thus disintegrated and broken up the last fragment of that massive educational fabric long the glory of our land: we do regret to see the Established Church herself, reducing within the limit of a narrow denominationalism, that which was originally national, and which might still be so expanded and so adapted to the altered conditions of the country, as to preserve for Scotland what she once had, a national system worthy of her early educational character.

Apart from all questions of educational progress and utilitarianism, and all crotchets of ecclesiastical and civil court controversies, the early sympathies and traditions of the Scotchman cling through life to his parish school. Judgment and sentiment pronounce in its favour. Amid the apathy, disorder, and all depths of its darkest days, the parish schools provided generally a substantial education in English and Classics, for rich and poor, and wrought out important social and moral results. On its benches social distinctions vanished;—class met class in the fervour of equal and honourable competition;—and friendships between rich and poor were formed, which, ripening in future years, genialised the community and made compacter its structure. How often has it happened that the peasant's son, starting in life with his wealthier companions, on the equal terms simply of an

adequate education, has rapidly distanced them, and after rising into opulence and power, has given to those who struggled behind, and now far beneath him, rich token of that kindliness which the common intercourse of the parish school originated and fostered, and which the iron heel of the world had never trodden out.

The political, social, and ecclesiastical constitutions of the country have changed. Scotland is no longer self-governing, and all her laws are being rapidly assimilated to those of England. Commerce has drawn together masses of town-population, and obliterated parochial distinctions. Succeeding secessions,—as we have already indicated,—have dissociated from the Established Church a vast proportion of her mental wealth and moral power. An intense denominationalism prevails. As parties multiply, conflicting interests increase in bitterness and exaggerated importance; and the difficulties of educational legislation are consequently becoming greater. The general aspects of the state of parties are anything but creditable to Scotland as a nation, so long honoured for Educational enlightenment, liberality, and power. Scottish educationists, bereft of their distinctiveness, are drifting helplessly among currents breaking over their country from English and Irish experiments. On every one of the great Educational questions of the day, Scotland is almost silent. Although possessing in our burgh and grammar schools the framework for an admirable system of thoroughly organised and liberally equipped intermediate or higher schools, Scottish educationists are silently permitting not only England but even Ireland, —beset as she is with manifold difficulties,—to grapple with these higher questions; and when some theory has been elaborated to suit the special conditions of these countries, with their universities differing from ours, the admirable grammar and burgh schools of this country must then be either altogether ignored or forced into combinations which ill befit them. In the Reports of the Endowed Schools in Ireland, there is among much useless and irrelevant matter, and through almost continuous cumbrousness and confusion, so much that is really valuable, suggestive, and practical, not only in the recommendations of the Commissioners themselves, but in the evidence of some of the leading educationists of the country, that we feel persuaded, if the Report be recognised as it deserves, some commanding Educational measure will be the result; and when Ireland has outstripped Scotland in the completeness of her equipments, we may then, perhaps, awake to the necessity of reorganising and readjusting the noble Educational fabric which the sagacity and zeal of the Reformers reared for us, and of which we are proving ourselves unworthy, by allowing it to fall into a decay altogether unfitting it for the educational activity and expansiveness of the age.

In so far as the progress of public opinion is concerned toward a National System, based on that already laid in the country, there is really little for our encouragement. The country is now broken up into numerous educating sections, under the Committee of Council on Education. Although the system in its Educational tone and arrangements, in its Pupil Teacherships, and disregard of the preparation in classics of our future teachers, and in many other respects is ill-suited to the traditions, tastes, and habits of our people, although it is a system specially framed for the condition of England, and is such as no Scotchman, honouring the educational genius of his country, and recognising the close relations subsisting between our primary schools and our universities, would have ever dreamed of proposing; the different educating sections of the country are submitting to purely Denominational action, and conforming to all the requirements of the Committee of Privy Council. As the country is being habituated to these processes, educational contentment is diffused, and the probabilities of a comprehensive National measure are annually lessening. An examination of the relative work and progress of our educating sections confirms this conclusion. There are in Scotland, according to last Census Returns, 3349 public day schools, and of these more than one-third are already receiving Parliamentary Grants. Every year the number is increasing. The following analysis which we have made of the lists furnished in the Minutes for this year, shows the extent to which the different religious communions in Scotland are taking advantage of State assistance. The tables only exhibit that part of our Denominational work which is connected with the Committee of Privy Council:—

SCHOOLS RECEIVING PARLIAMENTARY GRANTS.

	1857.	1858.		1857.	1858.
Free Church, - -	346	380	Roman Catholic, - -	21	29
General Assembly, -	278	283	Industrial, Ragged, etc.,	34	38
Parochial, - - -	173	197	Endowed, District, Subscription, etc., - -	107	123
Sessional, - - -	37	48	Academies, Grammar and Burgh Schools, - -	20	21
United Presbyterian, -	2	4			
Episcopalian, - -	71	76	In all,	1089	1199

This analysis, though not perfectly accurate, owing to the difficulty of ascertaining to what class a few of the schools in the list belong, shows the rapid progress of the country to an education exclusively denominational in its management. Endowed, parochial, sessional, grammar, and burgh schools, are all being drawn into the midst of sectional, if not thoroughly sectarian, influences. The nationality of our public schools will soon be a mere tradition. The pupil teachers in our schools, now numbering nearly two thousand, are all associated, during

their five years' apprenticeship, with an exclusive denominationalism. So also are our Queen's scholars, and nearly all our certificated teachers. The Normal schools, the centres of educational enthusiasm and example for the primary schools, are also strictly associated with the denomination which maintains them; and thus the system intensifies itself while expanding.

Although essentially of little importance whether the education of the young be conducted on a denominational or national basis, we confess our strong preference for a national system, free from all sectarianism; and we hold it to be deeply discreditable to our country, that, with a parochial system for a model, with an admirable framework already laid down for intermediate institutions, trained as we have been to the idea of national education, and with four-fifths of the educating community thoroughly agreed as to the duties of the State, the Church, and the parent in the education of the young, and in the general recognition of the Bible and Shorter Catechism as the basis of an unsectarian public instruction, we yet cannot agree to a suitable system—broad, bold, and comprehensive—sending its blessings down to the poorest, and carrying its highest privileges free to all classes, up to the halls of our universities.

While the present divided state of educational parties, however, is both discreditable to us and discouraging, the eagerness of many to cast denominationalism altogether out of the public school, is likely to launch us on a sea of greater difficulty than the present. We apprehend danger, and warn against it. Christian educationists in Scotland, perplexed, and perhaps disgusted, by ecclesiastical and political conflicts about ancient rights and tests, about the rightness or wrongness of State interference in religious education, have lately been showing—with a view, as they allege, to get over all difficulties—a decided disposition to a compromise with purely secular educationists, so far as either to confine Bible instruction to a prescribed corner of the daily or even weekly arrangements, or to exclude it altogether from the public school, on the understanding that the Bible may be taught before or after public school hours; and, as they ever point to the Irish national system as a successful vindication of their views, it becomes us to examine deliberately the results of that fully and fairly wrought experiment. If the Irish national system be indeed better fitted for Scotland than an extension of her own parochial system, let us divest ourselves of all national predilections, and at once gratefully adopt it.

Although holding decided conclusions on the subject, we shall not, at this stage, discuss the rightness or wrongness of this theory in its moral and religious bearings, but shall confine ourselves to a close examination of the results which its history has

distinctly evolved. Whatever differences of opinion may exist among our readers as to educational questions generally, there can be none as to the results of this experiment: the facts are so broadly marked and outstanding, that no ambiguities whatever stand in the way of clear and unembarrassed conclusions. While the instructive historical outline of educational effort in Ireland —legislative, associational, and individual—from 1580 to 1856, given by the Commissioners in their Report recently issued, and which we have prefixed in our list, indicates not only the deep interest long taken in the extension of popular education in Ireland, but the difficulties in its way arising from the peculiar political and religious conditions of the country, and is suggestive of many important inquiries, we must limit our investigation to the present experiment alone, and its results. We can do this with the greater ease, as its history is so distinct and of such recent origin. Its germ lies in the recommendation given by the Commissioners of Education in 1812, to introduce a system "from which should be banished even the suspicion of proselytism, and which, admitting children of all religious persuasions, should not interfere with the religious tenets of any." The Kildare Place Society was intrusted with the distribution of the National Grants, and faithfully carried out the principle on which they were bestowed. The religious instruction was meagre enough, being limited to the reading of the Scriptures, without note or comment, but sufficient to arouse the active opposition of the Romish priesthood. Although there were, according to the Second Report of the Government Commissioners, a large number of schools—2607—under Roman Catholic teachers, in which the Scriptures were read; and although in no fewer than 4179 adventure schools, conducted by teachers on their own responsibility, and adapted to the demands of the people, the Bible was read,—there was no vigorous opposition by the priesthood until it was found that the reading of the Scriptures was being systematised, and likely to awaken on religious questions the slumbering energies of the people. This opposition became so violent and so thoroughly organised, that statesmen grappled in vain with its power; and Englishmen and Scotchmen, alarmed by the volcanic upheavings of a nation whose millions were in conflict, eagerly sympathised with every proposal apparently fitted to pacify the people, and gave a ready acquiescence, therefore, to the proposal which Lord Stanley, now Earl Derby, submitted for the establishment of a national system, which was advocated as fitted to foster the kindliness of a common brotherhood. The general value and plan of the theory may be gathered from the following sentences in his well-known letter to the Duke of Leinster. Referring to the mere reading of the Word of God in school, he

says:—"But it seems to have been overlooked that the principles of the Roman Catholic Church were totally at variance with this principle, and that the indiscriminate reading of the Holy Scriptures, without note or comment, by children, must be peculiarly obnoxious to the Church which denies, even to adults, the right of unaided private interpretation of the sacred volume with respect to articles of religious belief." Noticing the many schemes proposed to meet the difficulty of the case, he adds:—"But it was soon found that these schemes were impracticable; and in 1828, a Committee of the House of Commons, to which were referred the various reports of the Commissioners of Education, recommended a system to be adopted which should afford, if possible, a combined literary and separate religious education, and should be capable of being so far adapted to the religious persuasions which prevail in Ireland, as to render it in truth a national system for the poorer classes of the community." Again, "In the success of this undertaking, much must depend on the character of the individuals who compose the Board, and the security afforded thereby to the country, that while the interests of religion are not overlooked, the most scrupulous care should be taken not to interfere with the peculiar tenets of any description of Christian pupils." To carry out this theory, we have in the same letter such practical suggestions as the following:—"But, as one of the main objects must be to unite in one system children of different creeds, and as much must depend on the co-operation of the resident clergy," he recommends that "applications be made by, *first*, the Protestant and Roman Catholic clergy of the parish; or, *secondly*, one of the clergy and a certain number of parishioners professing the opposite creed; or, *third*, the parishioners of both denominations;" and further, that, "for the proper support of the school, they (the Board) will invariably require, as a condition not to be departed from, that local funds shall be raised upon which any aid from the public will be dependent."

The theory thus distinctly enunciated, and carrying with its general aims and its details of practical application so much that is feasible and praiseworthy, was hailed by many as having the very power needed to draw gradually, yet surely, the conflicting elements of Irish factions into all the beauty and strength of national harmony,—as a halcyon charm, in short, which should soothe into repose the surge and surf of those political and religious agitations amid which so many governments had found themselves helpless. The statesmen of successive cabinets, sincerely desirous to promote through this system the best interests of the country, and hoping to lay in the common school the foundations of peace from Ireland, to legislate, gave the full measure of

their resources to secure its complete success. And what are now the issues? Has it established a united local patronage for the support of schools? Has it brought children of different creeds to sit on the same benches, and compete for the same distinctions, even in purely secular instruction? Has it lessened party animosities, and made the schoolmaster the common friend of all? Let results speak. With the history of concessions and changes we do not at present deal: we care not to show the concessions made separately to Presbyterian or Roman Catholic; enough that these have been made, and are working out distinct results. The simple question is, What is the fruit of our twenty-five years' expense and toil, and what light does this history shed over our difficulties in Scotland?

There is in this country a prevailing indefiniteness of thought as to the whole bearing of the system. We hear of some 5000 schools and 500,000 scholars, and infer that there is here a truly national system, resting on common principles, and pervaded by a common spirit. Although the channel separating this country from Ireland is not remarkably broad, the distance seems sufficient to lend enchantment to the view, and few are prepared for the facts which a close and deliberate investigation brings to light. We ask, therefore, the serious attention of educationists to a few incontrovertible statements as to matters of fact, proving the utter failure of this system in every one of its fundamental principles.

It was originally required that, with a view to the co-operative local management of each school, joint application for aid should be made by representatives of different religious denominations. No marvel that the Earl of Derby, startled by the answer of the Secretary of the Irish Board to the Select Committee of the House of Lords appointed in 1854, when he announced, through a tabular statement, that out of 4602 schools, only FORTY-EIGHT! were under joint management, asked again, "Do I rightly understand the return which you have now read, as showing that the whole number of schools under joint management is only 48 of persons of different religious denominations?"[1] Nothing can be more conclusive of failure. United management can scarcely be said to exist; applications for aid are almost invariably from one denomination.

But another step in the investigation reveals concessions still more remarkable, and completely destroying the unity of the system as national: we refer to the establishment of non-vested schools. Vested schools are those to the building of which the Commissioners have contributed, which are consequently vested in trustees, or in the Commissioners in their corporate capacity, and in which provision must be made for separate religious in-

[1] Report, pp. 20, 28.

struction. Non-vested schools, on the other hand, are those to the building of which the Commissioners are not permitted to contribute, and which are under the absolute control of the local patrons or committees. The teachers receive salaries, and the schools grants of books; but it remains with the patrons to decide whether or not there shall be any religious teaching, and what it shall be. The vested are obviously the only schools which can be described as in any sense national, and as even partially carrying out the original purposes of the Earl of Derby. Their number is comparatively small: according to last Report, there were only 1116 separate school-houses, or, including distinct schools in the same buildings, 1655. The non-vested schools, in almost every sense denominational, and in spirit and management utterly subversive of the primary purposes of the National System, number, on the other hand, no fewer than 3680. So, after the pressure and manifold anxieties of a quarter of a century, we have but a most fragmentary and discordant national system, showing little more than a thousand school-houses under the regulative and permanent control of the Board; while there are more than three thousand, not at all contemplated in the original plan, and positively antagonistic to its spirit, which patrons and committees control with absolute independence.

But this is not all. There is a class of schools still more intensely denominational in spirit and practice,—Convent and Monastic schools,—taught by nuns or monks, and for whose public support, in connection with a national system whose distinguishing aim was to avoid "even the suspicion of proselytism," there can be no satisfactory vindication. In these schools, by a special rule, there are permitted, during the day, intermediate religious services. Special legislation also admits nuns and monks to be teachers, while it positively prohibits the Episcopalian curate or Presbyterian minister from engaging in precisely the same work. The education may be good,—we do not question the effectiveness and devotedness with which the Sisters of various orders toil for the young,—but is it not most incongruous to mark these schools as *national*, and as having "banished from them even the suspicion of proselytism?" It is impossible to visit them, and note the quiet power of the Sisters, as they move gracefully and with intense earnestness through their classes, each with her suspended crucifix, peculiar head-dress, and flowing veil, without perceiving that, although not a syllable may directly tamper with the religious belief of any Protestant children attending for merely literary or industrial instruction, there are shed around them the silent, yet most effective, influences of a perpetual proselytism. It cannot be otherwise. No one for a moment doubts it who has carefully examined the working of this

system. We do not object to the assistance given to promote the literary and industrial interests of these schools, but we aver that they are strictly and unequivocally denominational, and to mark over them the description "National School" is a very mockery. As we turn from this section of our review, the question forces itself upon us, On what principle of justice or honourable policy is money lavished on schools like these, so utterly subversive of all the original purposes of the National System, and not a single farthing on Protestant schools, because the condition is that through them the *Bible* shall daily shed its hallowing and authoritative influences?

In closely examining this experiment, we find, further, that the spirit which has made joint management impracticable *outside* the school, works disastrously to the system as aiming at united education *within*. Parents naturally prefer teachers for their children of their own religious persuasion. It is common to find in immediate proximity two national schools,—the one under Roman Catholic patronage, taught by a Roman Catholic teacher, and attended by Roman Catholic children; the other being as exclusively Protestant in its character. To such an extent do these very natural preferences influence the schools, that, although there are some gratifying exceptions, united education has become an utterly hopeless aim. Recent reports give us no means of judging of the relative numbers of children of different religious persuasions in each school at present. Indeed, on this part of the working of the system the country was kept in the dark, until Returns, which had been obstinately refused for years, were peremptorily ordered by the Earl of Eglinton, during his first vice-royalty. These returns exhibit the state of the schools for the half-year ending March 1852, and completely dissipate, when closely examined, the delusion which we were long fain to cherish as to the general diffusion of the advantages of this National System. In the provinces of Leinster, Munster, and Connaught, the most ardent supporters of this system can find scarcely a trace of united education; and in Ulster, where religious parties are more nearly balanced, we find the children of Episcopalian or Presbyterian parents sent to Protestant in preference to Roman Catholic teachers. Throughout all Ireland the Roman Catholics in national schools are to Protestants (Established Church and Presbyterian), on the average, as to 6·35 to 1. Dr Carlile, who, it is well known, was a cordial supporter of the experiment, calculated in 1837 the ratio to be 5 to 2.[1] If his calculation be admitted—and there was no higher authority at the time on the subject—the difference is worth

[1] For a singularly calm and masterly discussion of the whole question, see Charge to the Clergy of his Diocese by the Bishop of Ossory.

noticing, as showing that the ratio has become 2½ times as great in favour of Roman Catholics as it was fifteen years before, and, consequently, that instead of nearing, we are receding from a healthier and better balanced state of parties.

The last annual blue-book enables us to test the system still more closely by the light of the teachers' religious persuasion. We have carefully analysed a list extending over 200 closely printed pages. We found several inaccuracies, even in simple addition, in the Government list,—a thing to be the less expected, inasmuch as the Report just issued is for 1856, and is fully two years behind time. This, however, by the way: the results are interesting, as showing the extent to which each denomination is taking advantage of public assistance. This tabular analysis represents all the schools under the Board, Ordinary and Special (Special including convent, workhouse, and agricultural schools).

	ORDINARY SCHOOLS.						SPECIAL SCHOOLS.						ORDINARY AND SPECIAL SCHOOLS.					
Provinces.	Pre r.*	R. C.	E. C.	Disst.	Not Named in Report.	Total.	Presr.	R. C.	E. C.	Disst.	Not Named in Report.	Total.	Presr.	R. C.	E. C.	Disst.	Not Named in Report.	Total
Ulster, . .	779	1170	229	37	9	2224	73	70	45	2	...	190	852	1240	274	39	9	2414
Munster, . .	1	1606	14	...	...	1621	2	400	9	1	22	434	3	2006	23	1	22	2055
Leinster, . .	3	1447	53	...	2	1505	8	375	25	...	...	408	11	1822	78	...	2	1913
Connaught, .	7	859	16	...	2	884	...	108	8	1	...	117	7	967	24	1	2	1001
	790	5082	312	37	13	6234	83	953	87	4	22	1149	873	6035	399	41	35	7383

* Presr., Presbyterian; R. C., Roman Catholic; E. C., Episcopal Church; Disst., Dissenter.

Thus, when we exhaust every variety of National School—ordinary, agricultural, workhouse, convent, and monastic—we have as the result—

873 Presbyterian Teachers,
399 Episcopalian do.,
6035 Roman Catholic do.

Out of 7383 Teachers, only 1348 are Protestant, including Episcopalians, Presbyterians, Dissenters, and those also for whom the Board have found no name. These results are such as few anticipated. But may not these, after all, be generally fair proportions? What are the relative numbers of Roman Catholics and Protestants in Ireland? Strange to say, the Census Returns for Ireland are silent as the grave on this subject. Under the curse of concession, the Returns came forth with no response to questions which were at once filled up in Britain. For the credit of British statemanship, and the interests of social science, we trust such tampering with National Statistics will never again be tolerated. Apart from this, we have striking supplementary evidence, in the Reports of the Church Education Society, that the above numbers do not at all adequately represent the Protestants of Ireland. We find that there are actually under the Church Education Society more Protestant Teachers than under the National Board. The numbers stand thus—1348 Protestant Teachers under the National Board; 1800 Protestant Teachers under the Church Education Society. The unexpected fact thus suddenly starts up before us, that there are more Protestant Schools supplying primary instruction to the poor of Ireland under the Church Education Society than are under the National Board. When we find that out of 2020 of the clergy of the Irish Church, not 90 give this system their support; when we look over the General Annual Reports of the Society, and the smaller District Reports, and, testing the character of associations by the names of their subscribers and supporters, we find to what an overwhelming extent the intellect, rank, wealth, and moral and religious power of Protestant Ireland are set dead against the system, because it excludes from the public school the word of God, we have no hesitation in affirming that *the System* is *not National*, and the difficulties of the Education question are yet unsolved. It is not our purpose to debate the questions raised between the Church Education Society and Government, but, we affirm, there is something grossly impolitic and harsh in the legislation which deliberately confers public assistance on Convent and Monastic Schools, while it continuously refuses to adopt such arrangements as would draw at once into the National System that vast accession of life and power which the support of the Established Church would give. They are not the friends

of Educational progress who exclude these Schools and the additional power they could bring for the social and professional elevation of the Teachers. We venture to affirm, that the legislation, which for a quarter of a century has disregarded and trampled on the conscientious opinions of 2000 clergy, and of the laity whom they collectively represent, is unworthy of the statemanship of Britain, and will assuredly be regarded in a generation or two hence as intolerant and persecuting.

In examining the means of local support for the Schools, we find there is neither local taxation nor any scale of contribution. The rule which we quoted at the outset, "that the Board will invariably require, as a condition *not to be departed from*, that local funds shall be raised," is a dead letter. In many cases, neither patrons, school-committees, nor scholars, pay a single farthing for the maintenance of the school; in others, a few shillings are paid to meet the Government salary; and from nearly 3000 schools, the contributions, including school-fees, donations, and regular subscriptions, are under L.5 a-year. The average sum raised locally over all Ireland is little more than L.5; and the average salary, from all sources, for each Teacher, is under L.30 a-year. In these hap-hazard processes there is little either to emulate or admire. What the style and efficiency of such Schools may be, we leave the reader to judge. In the Reports before us, we find rival panegyrics and rival depreciations. Each supporter bepraising or bespattering the National or the Church "Schools," as the case may be.

In the practical working of this system many absurdities appear, almost incredible, as associated with deliberative legislation, and which few men of common sense will venture to vindicate. We notice only one. Suppose a committee, interested in the welfare of the young, open a school in the midst of a Protestant district, and a hundred pupils attend, Episcopalian, Presbyterian, and Dissenting. The committee arrange, that while no catechism nor church formulary shall be taught, the school shall be opened with praise, prayer, and the reading of a short portion of the word of God. They give to some of the classes the Scripture Extracts, prepared and earnestly recommended by the Commissioners themselves; and to another class the volume of Sacred Poetry. The scholars are receiving a vigorous secular education, combined with the privileges of healthful moral and religious influences,—two Roman Catholic children, from a family just come to reside in the district, enter the school,—they object to praise and prayer, and henceforth the psalm must be unsung and prayer unuttered,—they object to the reading of the Bible, and it must be instantly shut,—the religious services, in which the young delighted, must cease in the public school, and about a

hundred scholars, at the bidding of two, must either come an hour earlier to school or remain an hour later,—they object to the Scripture Extracts, and they must at once be gathered up from every little scholar,—they object to the volume of "Sacred Poetry," used in another class for the ordinary purposes of instruction, and although neither of the Roman Catholics has a place in that class, or is called to read that simple and favourite volume, it too must be at once cast aside. These two little lads, objecting on the part of their parents, can not only send the Bible out of the public school, and silence opening praise and prayer, but can gather up from the different classes the Scripture Extracts and the volume of Sacred Poetry, and prohibit their public use This legislation is so utterly preposterous, and its processes so completely stultifying, that, as a fact in this nineteenth century, it is almost incredible.

We cannot believe that those who so strenuously press this National System, as a certain solution for our difficulties in Scotland, are even remotely cognisant of its actual results in Ireland. It is well the experiment has been made. The good men who took part in framing and launching this System "hoped all things," and neither did nor could foresee the impossibility of satisfying Roman Catholic educationists with anything short of a total surrender of all that is vital in Bible Christianity. Realising, at last, the hopelessness of the experiment, Baron Green, Judge Blackburn, and Archbishop Whately, have reluctantly given it up and retired from the Board. But, further consideration of the results is unnecessary. The Earl of Derby himself, the framer and advocate of the System, admits and laments its failure.[1] As it may be urged that these absurdities and extravagancies of concession are contingent on the peculiar condition of the country, we affirm, that the whole theory is fundamentally and essentially unsound, that it never has succeeded and never can. In Upper Canada, Prince Edward's Island, and, where tried in the United States, it has failed. All experience proves it to be an egregious educational blunder.

Apart from every question of abstract doctrinal teaching and

[1] "I admit," he said, in his place in the House of Lords in March last, "for my own part, that I very much regret, first of all, that the System of united education, which was *intended* to be *National*, has, to a *very considerable extent, failed to realise the expectation of its promoters*, . . . I regret that, in so large a portion of the schools, support has been given to the arguments of those opposed to them, and *that, in fact, in the great bulk of the schools, contrary to the intention of those who originally proposed the System, there not only is no religious education given, but no facilities even* are given for separate religious instruction by the ministers of different persuasions, out of school hours." Those who know the reluctance of the Earl of Derby to acknowledge an error, will best understand the state of the experiment now, when it has wrung from him so full and explicit an admission.

general forms of Christian Churches, it is impossible to train the young to the habits of a healthful citizenship without the morality and authority of the Bible.

That Education must ever be feeble and fragmentary which disassociates the moral and religious from the social and intellectual, and addresses itself to the lower purposes of life, leaving the conscience without exercise, the Bible unnoticed, and God in Christ unrecognised and unnamed. It has been urged, that the theory is in practice not so bad; that in the Normal and Public Schools references to Scripture authority may be made, and passages quoted, either enforcive or illustrative. But this, we affirm, can only be done in gross violation of the principle, on the faith of which Roman Catholic students attend the Normal Institution, and children the common schools; and, in every case, the Roman Catholic who denies the right of the "unauthorised" to deal with Scripture, may justly be suspicious of proselytism, and complain of all or any applications of Scripture in the hearing of his children by a heretic; and the Infidel, who denies the authority of the Bible, may justly complain of the teacher for setting the positive belief of the child against the negative belief of the parent.

But, there is another objection, the force of which will be universally admitted. The expediency that sweeps the Scriptures from the Public School, must also, in deference to Popish prejudice, carry with it all that is distinctive in British history. In Ireland there is and can be no public recognition of historical facts and men. It is essentially incompatible with united education. History must be excluded from the literary, as the Bible from the moral, instruction. A few meagre facts about the invasion of Julius Cæsar, about Scots, Picts, Saxons, and the like, we do find in little books in stray schools, but nothing more. The Commissioners of Inquiry into the Endowed Schools attest this fact. Surely the advocates of such a System as suitable for Scotland, do not estimate the consequences. For our own part, we hope never to look on the face of the recreant Scot, who would blot from our school histories all reference to the life, character, and times, of Patrick Hamilton, George Wishart, Knox, and Melville, and command the schoolmaster to be silent about Wickliffe and William Tyndale, Oliver Cromwell and John Milton, and those lofty names that fill up the intervening and succeeding periods, giving to the firmament of the past a halo of unwonted splendour. Such a System, necessarily involving influences which wither alike the piety and patriotism of the people, will never, we trust, be attempted or tolerated in Scotland.

We ought to notice here, as closely associated with the National

System, and under the National Board, the Agricultural Experiment, but our limits forbid more than a passing reference. While we welcome every legitimate effort to ameliorate the condition of the people, and cordially approve of the erection of Professorships in our Colleges and Universities on the Arts and Sciences, which bear on the material interests of the people, as Mining Engineering, Agricultural Chemistry, etc., we think the principle vicious in political economy, which permits the State to enter, as in reality, a competitor, while professedly only a guide, in either agricultural or commercial pursuits. The State should abstain from all interference with the material resources of a free people, enjoying the benefit of open and unrestricted competition. Ireland is only now beginning to enjoy these privileges, and will assuredly make all the greater agricultural progress that the State lets her alone. As well may the State become the "Moses" or "Hyam" of Ireland, and erect establishments to give to the coat of the Connaught labourer a happier fit, and to his brogues a more graceful form and finish, as begin the work of farmer-general for Ireland. Apart from the principle in political economy which it affects, the recorded results of the experiment are miserably incommensurate with the recorded outlay. The Central Institution, and some of the District Model Farms, are conducted with enthusiasm, and accomplishing some good, but the general feebleness of the whole experiment, may be seen in its attempting the social elevation of the people through agricultural schools, whose farms have a "cowshed," a "piggery," or a "toolhouse," for their offices; and whose "live stock" consist of a single pig or a few poultry. Fortunately, we do not require to wield such appliances or study such examples. The Lothians render Albert Institutions useless; and we doubt not, the happy time is speedily approaching, when the private farmer will outstrip in Ireland his State competitor.

Although the so-called National System has failed to work out United Education, it is through Denominational action largely promoting public instruction. Abrogation is, on this account, not desirable. We urge adjustment, not abandonment nor overthrow. Let the present framework, dissociated from agricultural and all other incidental experiments, remain as the basis of extended and improved applications: let the varied processes of inspection, competitive examinations, and normal training, be stimulated by increased liberality in Government aid and local contributions, and by a higher standard of attainment,—in the spirit—very much also in the form—of Dr Chalmers' recommendation, let the National Board require, as the condition of continued assistance, a prescribed standard of proficiency,—but let the legislation, which has thrown the Bible out of the Public

School be withdrawn: let all the complicated regulations about religious instruction, with their ambiguous explanatory clauses, be at once swept off, as having proved utterly ineffectual either to promote united literary education, or to provide separate religious teaching. These regulations have been effective only in keeping *outside* the System nearly all the 2020 clergy of the Established Church, and more Protestant Schools than are *within*. Matters can scarcely be worse. Separation and sectarianism can never become more saddening. The change suggested would leave all the Schools under the System precisely on the same footing with regard to Secular Education, as at present, and with but little or no difference as to the Religious, for the Presbyterians have the Bible in their Schools, and no regulations that Government can frame will much modify the religious tone and character of Roman Catholic Schools. Bible teaching may safely be left to the zeal and good sense of Episcopalian and Presbyterian patrons and committees. The withdrawal of the legislative restrictions so offensive to the Established Church, would secure a vast accession of Educational power to the National System, and an efficiency in the Common School impossible amid present antagonisms. We would continue the present arrangements as to the National Board, and erect additional Normal Institutions, not for sectarian, but for common training. We deprecate all possibility of divided action in promoting public instruction by separate Boards, whether judicial or executive. It is with regret we find the Commissioners recommending, in their Report on Endowed Schools, a separate Board for Endowed Mixed Schools. We highly value many of their suggestions, as springing from a liberal spirit and marked by great practical wisdom, but think Mr Stephen, the dissentient Commissioner, has decidedly the best of the argument, when objecting, in his *Letter to Sir George Grey*, not only to this, but to some of the other proposals. The divided counsels of the Commissioners lessen much the value of their most ponderous Report; and it is to be hoped that their suggestion to erect an additional Board, will not be adopted. Every proposal to dissociate public institutions spread, for a common object, over the country, and throw them into classified groups, necessarily fenced by more or less of exclusiveness, tends to irritation and discontent. Fragmentary deliberation, halting, if not conflicting, movements, and enfeebled Education, must be the inevitable results. Efficient schools will more promote united Education, than all possible legislative constraints.

In England, while there is nothing distinctive in Educational legislation, there is much for the study of educationists in the higher enthusiasm and completer organisation of the Normal Colleges, in the multiplicity of monthly and quarterly serials de-

voted exclusively to Educational subjects, and in the fervour and power with which many of the discussions are conducted. Nothing, perhaps, more strikingly illustrates the difference between the condition of England and Scotland, than the fact that, while almost every educating section in England has its vigorous periodical, there is not in all Scotland a single serial devoted to the interests of public Education. Apart from the question of University improvement, Scottish Educational thought has been stereotyped for nearly thirty years; and almost every movement, whether backward or forward—to right or left—has been mechanical to some impulse from England. This is a change in our history which our educationists may well examine.

What is to be done? The time has come when there must be renewed efforts to frame and establish a National System on a broad and liberal basis, not an implantation from Ireland or England, but an evolution from amid our own National experiences, and adapted to the altered condition of society. The difficulty hitherto has been to legislate so as to preserve the Bible in the common school, and secure the support of the "Voluntary party." Solutions have been attempted again and again, so earnest and liberal, as to give promise, though they failed, of success, to repeated and modified trial. Now that the dust of agitation and controversy has been carried past us, we may profit by our mistakes, and relay our foundations. In the resolutions agreed to at the public meeting of the National Education Society held in Edinburgh in 1850, religious instruction in the Common School was left altogether to the haphazard deliverances of School Committees, chosen from amid masses of the community. The Church was ignored as an educating power; and the resolutions, though influentially supported and advocated with consummate ability, proved generally unacceptable. In the "Proposal for a System of National Education," signed by Dr Cunningham, Dr Candlish, and others, there was provision made that the Government inspectors "satisfy themselves as to the moral and religious character of candidates" for teacherships, "but without imposing any test of conformity;" and, further, that "the religious instruction be given exclusively from the authorised version of the Holy Scriptures and the Shorter Catechism." The Church was so far recognised, that the ministers of different denominations might have liberty of visiting. The proposal was very unacceptable to a large class, because it legislated at all as to religious instruction in the school; and to another class, because it left to the decision of inspectors the religious character of the teacher; and, further, because, if the teacher proved incompetent or immoral, there was no local management or control provided. The Sheriff was to have the incon-

gruous task of settling all difficulties, disputes, and delinquencies. It provided for religious instruction, but swept from those most interested in the school, every trace of religious control; and, while it recognised the Established Church and other Presbyterian bodies, as entitled to take an interest in schools and watch over their efficiency, it denied them any jurisdiction, and transferred to the Sheriff-court the functions of a court of conscience. For these and similar reasons, the "Proposal," though closer in its tone and arrangements to the general wishes of the people than the resolutions already noticed, did not carry with it sufficient support.

The difficulty may be obviated by a legislation which deals in this country, not with the Education in the School, but with the Local Managers or Board out of it: Let the legislation give such constitution to the Local Boards as will be a guarantee, that the best instruction, secular and religious, will be efficiently imparted: Let them be constituted on the tacit recognition of the threefold responsibility of the parent, the Church and the State: Let the Town-Councils elect three of their members,—and let the Presbyteries,—Established, Free, and United Presbyterian—elect each a representative, as the Local Educational Board, with power to add to their number three others, if they see necessary. This would enable the Board to obtain the co-operation of clergymen and laymen of other denominations, distinguished for their interest and influence in local education. Each school district might have also its commissioner, chosen by resident heads of families, to take part in the deliberations of the Board. But we omit details, and refer to the admirable work by Sir James Kay Shuttleworth, as having many valuable hints on this view of the subject.[1] This is the only course, we think, likely to extricate conflicting parties from the disgraceful dead-lock in which, for many years, they have been lying; and to give the country a satisfactory guarantee, without statutory obligations, that the Education shall unite the thoroughly intellectual with the moral and religious. With this start, and free from the encumbrances of ecclesiastical and political antagonisms, it will be comparatively easy to carry improvements upward through all our intermediate institutions.

But difficulties, dark and almost overwhelmingly saddening, meet us when we look outward and downward on the simmering masses, out of which our Ragged-Schools and Reformatories are ever filling. Oppressive revelations of the social disorganisation and disease of the sinking and sunken, are spread before us in the calmly written and invaluable work by Mr Thomson of

[1] "Public Education," pp. 396–409.

Banchory, "*Punishment* and *Prevention*." It exhibits the more effective methods yet attempted for prevention and reformation. But what avail they all? Ragged Schools and Reformatories are but skirting the borders of the sinking and the sunken, without permanently lessening the mass. Our manifold appliances yet scratch the surface, and gather in a few floating particles for improvement. Were there no reproducing, nor rapid filling up of the empty space, the whole mass might ultimately yield to the play of benevolence and philanthropy, as the solid rock moulders into pliability and fruitfulness under the gentle influences of the air, the glistening dewdrop and the silent sunbeam. But such result is here improbable. Nor, will a National System avail. The most perfectly equipped network of National Schools, spread over the whole country, and lowered to encircle the most sunken, will assuredly not avail. All experience attests, that to raise the sunken, or to arrest the sinking, something more direct and stringent is needed,—in short, that compulsory Education is now a National necessity.

The claims of the labour market must no longer triumph over the rights of children,—covetous employers and parents must be no longer permitted to lay the body, heart, intellect, and spirit of the helpless young a sacrifice on the altar of Traffic, and to raise imposing structures out of finest sensibilities, while they crush hopeful intellects which they keep for ever dark, and consciences which they too often touch only to deaden. Britain has already broken in upon the sacredness of the labour-market by smiting off the fetters of the slave; and why not, by regulative legislation, lighten for her own children the burden of premature toil? The difficulties are not insuperable in the way of extending to all employments the principle of the Factory Act, and of applying Educational tests as the condition both of half and of full time labour. For the hundreds of thousands who are growing up untaught, a source of misery to themselves, and of weakness to the state, increasing our taxation, multiplying our reformatories, and exhausting public benevolence, nothing short of direct compulsion will suffice. The Educational condition of our sinking and sunken population, demands extraordinary remedial measures. We pity the imbecility which for generations leaves untouched the Pontine Marshes while they diffuse the elements of disease and death; but wherein is Britain better, so long as she allows her moral jungles to send abroad freely, on the breeze of every passing influence, the seeds of idleness, vagrancy, and crime?

ART. IX.—1. *Poetry of the Anti-Jacobin: Comprising the celebrated Political and Satirical Poems, Parodies, and Jeux-d'Esprit of the Right Hon. George Canning, the Earl of Carlisle, Marquis Wellesley, the Right Hon. J. H. Frere, W. Gifford, Esq., the Right Hon. W. Pitt, G. Ellis, Esq., and Others.* With Explanatory Notes. By CHARLES EDMONDS. Second Edition. London, 1854. 8vo.

2. *Melibœus-Hipponax.* The Biglow Papers. Edited, with an Introduction, Notes, Glossary, and Copious Index, by HOMER WILBUR, A.M. Fourth Edition. Boston, 1856. 8vo.

3. *The Age: a Colloquial Satire.* By PHILIP JAMES BAILEY. London, 1858. 8vo.

4. *Humbug Attacked, in Church, Law, Physic, Army, and Navy. A Poem.* By Mr JOHN BULL, Jun. London, 1858. 8vo.

5. *Two Millions.* By WILLIAM ALLEN BUTLER, Author of "Nothing to Wear." London, 1858. 8vo.

THE poetry of the Anti-Jacobin, now more than half a century old, contains the latest specimens which have been produced in England of true satire—of satire which is likely to stand the test of time. The satires of Moore and Byron are already obsolete, and would rarely meet our eyes but for the place they necessarily occupy in the "complete works" of these poets. The condition under which satire is likely to be well-written, are even more rare than those which produce good poetry. The writer must be a man of very great vigour of intellect—even greater than that which would make a good poet upon grave subjects—for he must subdue and bring into the realm of poetry the most refractory kind of matter; and he must have a *good grievance*, one which has the rare recommendation of having at once a special and temporal, and an abiding, public interest. Personal satires, without the latter element, are in reality no more than vulgar libels—allowing the maxim, "the greater the truth, the greater the libel;" and satires, without the personal, or party, element, are not satires, but "didactic poems"—things which the world has very properly agreed to nauseate. That which is to blame in the social body, before it can be assimilated by the poetical digestion, must be cooked up with the salt of wit and the pepper of personality. Even then there is something very unsatisfactory, to the cultivated imagination, in most forms of satire. With the lapse of time, the salt always loses some of its sharpness, and the pepper becomes less pricking to the palate; and the harsh and essentially unpoetical and properly unversifi-

able *negative* character of censure, acquires a more or less repulsive predominance. We are strongly of opinion that parody—although sadly susceptible of foolish application—is the form of satire which best justifies the employment of verse. Verse, even of the lowest kind, is an assertion, at the outset, of thoughts and feelings which "move harmonious numbers." Now, mere censure, or mere ridicule, does not do any such thing; witness the satires of Pope, which are, for the most part, the smoothest, and, at the same time, the least "harmonious" numbers in the world. Pope's numbers never approach to being musical, properly speaking, except when he rises above the merely negative character of most of his satires, and becomes really indignant, or when he assumes a sympathy with what he satirises, as in that delightful poem, "The Rape of the Lock." In the first case, the negative character of blame or ridicule becomes subordinated to the positive and poetical love of good, implied in indignation; and, in the second, he adopts the truest form of satire—its most thoroughly poetical and genuine form—that of a humourous adoption of, and assumption of, sympathy with the absurd.

Most of the satires of the Anti-Jacobin were written in the happiest form, and under the happiest conditions. Their authors were men of great intellectual vigour and worldly knowledge,—that essential constituent of the truly poetical no less than the political character; and they had a most excellent grievance. The doctrines of the French Revolution had been more or less accepted in England, to an extent which must have seemed indescribably alarming to men who did not need to wait for the subsequent practical results, to be convinced of and horrified at their nature. Men of the purest lives and highest imaginations, Wordsworth, Southey, Coleridge, among others, were deceived and seduced by the boast of the near approach of that "good time coming," which has at all times possessed such charms for the poetical fancy, but which has always been laughed at by men whose judgment has been cultivated by a knowledge of the world and a thorough training in moral and historical science. Here was an evil which united the personal and temporary with the abiding interest, in the highest degree. As long as human nature is human nature, there will always be a considerable class of persons at whom the finger of scorn, pointed by the authors of the "Anti-Jacobin," towards persons now no more, will stand equally directed; but it was only under the temporary predominance of, and threatened danger from, the principles of that class in England, at the time of the French Revolution, that those persons and principles could produce the amount of interest required as a basis for satire. The recollection of the interest and importance which once attached to the verses of the Anti-Jacobin,

gives them value to readers of the present time, who probably would not have paid much attention to the same satires, had they appeared in our own day. The same thing is true of "Hudibras," "Tartuffe," and every other satire of permanent worth.

We have said that parody is the most perfect form of satire; but, by parody we do not mean exclusively the ironical imitation or paraphrase of other writers. The parody may be that of a habit of thought or action. The essential of satirical, as distinguished from mere farcical, parody, is, that it shall represent, with a humourous assumption of sympathy, the satirised habits or principles, in a condition of development so advanced as to be their own refutation. The "Poetry of the Anti-Jacobin" contains several irresistibly humourous and forcible examples of this kind of satire. "The Friend of Humanity and the Knife-Grinder," is as fresh in its fun as if it had been written yesterday. It is a parody of Southey's Sapphics—"The Widow," of which one stanza will suffice to enable our readers to enter fully into the parody:—

"I had a home once; I had once a husband:
I am a widow, poor, and broken-hearted!"
Loud blew the wind, unheard was her complaining:
On drove the chariot.

Thus runs the imitation of Southey's somewhat illogical "invective against the pride of property:"—

Friend of Humanity.

"Needy knife-grinder! whither are you going?
Rough is the road, your wheel is out of order;
Bleak blows the blast; your hat has got a hole in't,
So have your breeches!

"Weary knife-grinder! little think the proud ones,
Who, in their coaches, roll along the turnpike-
Road, what hard work 'tis crying all day, 'Knives and
Scissors to grind, O!'"

The "Knife-Grinder," and the parody on an "Inscription for the apartment in Chepstow Castle, where Henry Martin, the regicide, was imprisoned thirty years," probably did as good political service as was ever done by an equal amount of literature, since literature existed. The following is Southey's inscription:—

"For thirty years, secluded from mankind,
Here Martin lingered. Often have these walls
Echoed his footsteps, as with even tread
He paced around his prison: not to him
Did Nature's fair varieties exist;
He never saw the sun's delightful beams,
Save when, through yon high bars he poured a sad
And broken splendour. Dost thou ask his crime?

He had *rebelled against the king, and sat*
In judgment on him; for his ardent mind
Shaped goodliest plans of happiness on earth,
And peace and liberty. Wild dreams! but such
As Plato loved; such as, with holy zeal,
Our Milton worshipp'd. Blessed hopes! awhile
From man withheld, even to the latter days,
When Christ shall come, and all things be fulfill'd."

Whatever may be one's opinion of Henry Martin, it is impossible not to laugh heartily at the humour and force of the following development of the principle implied in Southey's approval of bloodshed, for the sake of the realisation of what he himself represents as the "wild dreams" of an individual:—

"Inscription for the door of the cell in Newgate where Mrs Brownrigg, the Prenticide, was confined previous to her execution.

"For one long term, or e'er her trial came,
Here Brownrigg linger'd. Often have these cells
Echoed her blasphemies, as with shrill voice
She scream'd for fresh Geneva. Not to her
Did the blythe fields of Tothill, or thy street,
St Giles, its fair varieties expand;
Till at the last, in slow-drawn cart she went
To execution. Dost thou ask her crime?
She whipp'd two female 'Prentices to death,
And hid them in the coal-hole. For her mind
Shaped strictest plans of discipline. Sage schemes!
Such as Lycurgus taught, when at the shrine
Of the Orthyan goddess he bade flog
The little Spartans; such as erst chastised
Our Milton when at college. For this act
Did Brownrigg swing. Harsh laws! *But time shall come*
When France shall reign, and laws be all repeal'd."

The picture in the last five words of the revolutionary millennium is inimitable; and is more fatally convincing in its fun than any amount of grave disquisition, even of a Burke.

In the long piece called "New Morality," we have an admirable example of the *direct* satire of indignation against a class of evil which had reached its climax at the period of the first French Revolution, but which has a perennial vitality, and is indeed at present almost as rampant in the ordinary morality of France,—as expressed by its literature,—as ever; namely, the substitution of morbid feelings for moral truth, and the merging of individual duties in generalities too vague for action.

"Behold Philanthropy, whose boundless mind
Glows with the general love of all mankind;

Philanthropy, beneath whose baneful sway
Each patriot passion smiles and dies away.
No narrow bigot *he;* his reason'd view
Thy interests, England, ranks with thine, Peru!
France at our doors, *he* sees no danger nigh,
But heaves for Turkey's woes the impartial sigh:
A steady patriot of the world alone;
The friend of every country—but his own.
* * * *
Next comes a gentler virtue. Ah, beware
Lest the harsh verse her shrinking softness scare.
Sweet Sensibility, who dwells enshrined
In the fine foldings of the feeling mind!
* * * Her feelings strong,
False by degrees, and exquisitely wrung;
For the crush'd beetle *first,*—the widowed dove,
And all the warbling sorrows of the grove;
Next, for poor suffering *guilt;* and, *last* of all,
For parents, friends, a king and country's fall."

This delightful volume ranges over a great variety of subjects; and upon all it is brilliant, fresh, and full of strong good sense. There is scarcely a page which does not deal a fatal blow to some moral, political, or literary abuse or absurdity. A whole class of "Didactic Poems," till then respectable, became for ever ridiculous from the day of the appearance of "The Progress of Man, a didactic poem, with notes critical and explanatory, dedicated to R. P. Knight, Esq.," whose "Progress of Civil Society" was the immediate provocation. The mere "argument" of the first "canto" is a satire complete in itself:—"The subject proposed. Doubts and waverings. Queries not to be answered. Formation of the stupendous whole. Cosmogony; or the creation of the world. The Devil. Man. Various classes of being. The influence of the sexual appetite—on tigers—on whales—on crimpt cod—on perch—on shrimps—on oysters. Various stations assigned to different animals. Bears remarkable for their fur. Birds do not graze—nor fishes fly—nor beasts live in the water. Plants equally contented with their lot:—Potatoes—Cabbage—Lettuce—Leeks—Cucumbers. Man only discontented—Born a savage—Resigns his liberty. Priestcraft. Kingcraft. Tyranny of Laws and Institutions. The savage free—Feeds on hips and haws—Animal food—He wonders if it is good—Resolves to try—Makes a bow and arrow—Kills a pig—Lights a fire. Apostrophe to fire," etc. The satire called "The Rovers; or the Double Arrangement," was the death of the English *furore* for the German drama of the day; the tendency of which was "to substitute, in lieu of a sober contentment and regular discharge of the duties incident to each man's particular situation, a wild

desire of undefinable latitude and extravagance,—an aspiration after shapeless somethings that can neither be described nor understood, a contemptuous disgust at all that *is*." The purpose of this parody, according to the preface of its supposed author, Mr Higgins, is to represent "the reciprocal duties of one or more husbands to one or more wives, and to the children who may happen to arise out of this complicated and endearing connection." The song of Rogero, described in the list of "Dramatis Personæ," as "in love with Matilda Pottinger," who is herself described as "in love with Rogero, and mother to Casimere's children," is as universally and as deservedly known as anything of its length in modern verse. Indeed, it is to us inexplicable how so many of the separate poems of the "Anti-Jacobin" should have attained so vast a reputation as that which attaches to this song, the "Knife-grinder," the "Loves of the Triangles," the "Elegy" beginning "All in the Town of Tunis," and others, and yet the complete collection—one of the most charming little volumes ever published—should only have been made three years ago; and, after three years, should only have reached a second edition. There is no book of modern verse which is more certain of a place among the English classics, or which more refreshingly contrasts, in its genial power, with much of the witless word-painting that passes for poetry in the present day. Apart from the satirical ability of these verses, many of them display a combined force and delicacy of expression, which have rarely been surpassed. Several passages in the "Loves of the Triangles" may be taken as models of descriptive power.

Whatever satiric power has arisen in England during the sixty years which have elapsed since the appearance of the "Anti-Jacobin," has been devoted to subjects of too transient an interest to be the foundation of abiding verse. This has been rather the misfortune than the fault of the satirists; for, during that time, we cannot call to mind that any abuse has been developed to a sufficiently conspicuous and dangerous extent, to become deserving of the lash of a first-rate poet. For many years past, satire seems to have died out altogether; and, it is only within the last season or two that it has shown any tendency to revive. All at once we have a batch of small satirists—Mr Bailey at their head—in England, and one really powerful satirist in America, namely, Mr J. R. Lowell, whose "Biglow Papers" we most gladly welcome, as being, not only the best volume of satires since the Anti-Jacobin, but as also the first work of real and efficient poetical genius which has reached us from the United States. We have been under the necessity of telling some unpleasant truths about American literature, from time to time; and it is with hearty pleasure that we are now able to own

that the Britishers have been, for the present, utterly, and apparently hopelessly, beaten, by a Yankee, in one important department of poetry. In the United States social and political evils have a breadth and tangibility which are not at present to be found in the condition of any other civilised country. The "peculiar domestic institution," the filibustering tendencies of the nation, the tyranny of a vulgar "public opinion," and the charlatanism, which is the price of political power, are butts for the shafts of the satirist, which European poets may well envy Mr Lowell. We do not pretend to affirm, that the evils of European society may not be as great, in their own way, as those which afflict the credit of the United States—with the exception, of course, of slavery, which makes "American freedom" deservedly the laughing-stock of the world—but what we do say is, that the evils in point, have a boldness and simplicity about them, which our more sophisticated follies have not; and, that a hundred years hence, Mr Lowell's Yankee satires will be perfectly intelligible to every one, whereas, most of the subjects offered by European politics, are such as would require an explanatory commentary twenty years hence, just as is the case at present with the satires of Byron and Moore. The only subject in the social state of England at all rivalling in satiric capabilities any one of half-a-dozen subjects seized by the author of the "Biglow Papers," is the strange and portentous despotism which threatens, as usual, to arise from the very heart of freedom,—a despotism, against which songs and assassins would be equally powerless, namely, that of the newspaper-press, which combines the two most fatal elements of tyranny, popularity, and an enmity to all individual excellence. A newspaper is a trading speculation, which must rely for its success, in a very large measure, upon the skill with which it follows the prejudices of the many, while it appears to teach them. The danger which would arise to the life of freedom —though not perhaps to its external forms—should any one paper ever acquire such a preponderance, as to leave any person or party whom it might choose to injure, without appeal—for the most fatal injuries are not "actionable"—is one which has made the hearts of the best and bravest tremble; and we regret, that a subject, in every way so worthy of the indignant eloquence of the greatest poets, should as yet have found no better treatment than that of Mr Bailey's, whose verses on this subject we append as a fair specimen of his last poem:—

> "But even now in England may be found
> A tyranny that's greatly gaining ground;
> Though less upon the ladder's lowest round
> Than on the upper; the mid-classes most.
> From filling, first, a very humble post,
> The Typocrat now rules from coast to coast;

Who, rattling off a leader while you are winking,
Has almost stifled independent thinking.
As people pray in Tartary by machines,
So here by dailys, weeklys, magazines,
Each turns his wordy mill, which nothing means;
So deftly now the Press, of scribbling power,
Inflates the favourite folly of the hour;
Some grand delusion happily long covert,
But ripe at last for sale in market overt;
That when its influence seems most comprehensive,
Its worthlessness but shows the more extensive.
And this because its prosperousness depends,
Not on its speaking truths, but making friends,
Sway o'er weak minds, and gain its only ends.
Has ever one, when war-tide was at flood,
Called to the people—'Hold, friends! it were good,
Ere we commit our hands to blows or blood,
To scan those maxims which, in cooler hours,
We have maintained as Christians, must be ours,
And conscience may admit as motive powers?'
Soon as the scent of blood first taints the air,
The sleuth hounds of the Press at once are there.
All philanthropic cant is cast away;
To rouse ill passions is to make them pay.
With polished pens and learning at command,
Although their reasoning rarely could withstand
A Sunday scholar's logic in the land,
Yet types—the Press—the body of the nation."

We cannot give a better example of the difference between true and false satire, than by appending to the diffuse and flabby verse of "The Age," the following four lines, which are the conclusion of Mr Lowell's "Pious Editor's Creed."

In short, I firmly du believe
In Humbug generally;
For it's a thing that I perceive
To have a solid vally.

Satire at once so genial and good-humoured, and yet so fatal as that of "Ezekiel Biglow," is, indeed, a relief after the weary platitudes which have recently appeared, under the name of satire, in England. Out of a volume, as full as it can hold, of good stuff, we shall take, almost at random, a few specimens, for the edification of that large proportion of our readers to whom this very remarkable work is probably unknown.

There is no portion of "Hudibras" itself which is, space for space, so abundant in fun and hard hits as the "Remarks of Increase D. O'Phace, Esquire, at an extrumpery caucus in State Street," from which these are stray sentences:—

"I'm willin' a man should go tollable strong
Agin wrong in the abstract, for thet kind o' wrong
Is ollers unpop'lar an' never gits pitied,
Because it's a crime no one ever committed;
But he mus'nt be hard on partickler sins,
Coz then he'll be kickin' the people's own shins."

"Constitoounts air hendy to help a man in,
But arterwards don't weigh the heft of a pin.
Wy, the people can't all live on Uncle Sam's pus,
So they've nothin' to du with't fer better or wus;
It's the folks that air kind o' brought up to depend on't,
Thet hev any consarn in't, an' thet is the end on't."

The reckless fun of the following lines is more like Rabelais than any other satirist:—

"We'd assumed with gret skill *a commandin' position,*
On this side or thet, no one couldn't tell wich one,
So, wutever side wipped, we'd a chance at the plunder,
And could sue fer infringin' our paytented thunder;
We were ready to vote for whoever wuz eligible,
Ef on all pints at issoo he'd stay unintelligible.
Wal, sposin' we hed to gulp down our perfessions,
We were ready to come out next mornin' with fresh ones;
Besides, ef we did, t'was our business alone,
Fer couldn't we du wut we would with our own?
An' ef a man can, wen pervisions hev riz so,
Eat up his own words, it's a marcy it is so.

We wish that we had space to quote the whole description of the incident which led to Mr Sawin's conversion to slavery doctrines, but we can only give a few lines here and there:—

"Ez fer the niggers, I've ben South, an' thet hez changed my mind;
A lazier, more ungrateful set you couldn't nowers find.

* * * * *

I shou'dered queen's-arm and stumped out, ah! when I come t' th' swamp,
Tworn't very long afore I gut upon the nest o' Pomp.

* * * * *

Wal, I jest gut 'em into a line, an' druv 'em on afore me,
The pis'nous brutes, I'd no idee o' the ill-will they bore me.
We walked till som'ers about noon, an' then it grew so hot
I thought it best to camp awhile, so I chose out a spot,
Then I unstrapped my wooden leg, coz it begun to chafe,
An' laid it down jest by my side, supposin' all wuz safe."

Pomp, however, "snaked up behind," and stole the leg, robbed him of his pistols, and took him prisoner to the swamp.

"An kep' me pris'ner 'bout six months, an' worked me, tu, like sin,
Till I hed gut his corn and his Carlino taters in;

He made me larn him readin', tu (although the crittur saw
How much it hut my morril sense to act agin the law),
So'st he could read a Bible he'd gut; an' axed if I could pint
The North Star out; but there I put his nose some out o' jint,
For I weeled roun' about sou'-west, an', lookin' up a bit,
Picked out a middlin' shiny one an' tole him thet was it.
Fin'lly, he took me to the door, an', givin' me a kick,
Sez,—"Ef you know wut's best fer ye, be off now, double-quick."

The best American writers are very fond of preaching against, and laughing at, war, chiefly because they have as yet had no experience whatever of its real necessity; and, not being very profound in European history and politics, they are apt to judge our wars by the standard of their own filibustering enterprises. This explains, if not excuses, the somewhat shallow arguments they use when speaking of war generally, and accounts for certain stanzas of Mr Lowell's, which, though admirably witty, are of doubtful wisdom, if meant to apply beyond his own country. But, Mr Bailey has no such excuse; and, in what he says on this and many other questions, he displays that strange ignorance of ordinary social and moral truth which so disastrously distinguishes the whole of the spasmodic school of poets. We trust that when we assure our readers that the following lines are above the average merit of Mr Bailey's poem, they will hold us excused from entering into any detailed criticism of it:—

"Of all conceits mis-grafted on God's Word,
A Christian soldier seems the most absurd.
That Word commands us so to act in all things;
As not to hurt another e'en in small things;
To flee from anger, hatred, bloodshed, strife;
To pray for, and to care for, other's life.
A Christian soldier's duty is to slay,
Wound, harass, slaughter, hack, in every way,
Those men whose souls he prays for night and day;
With what consistency let Prelates say.
He's told to love his enemies; don't scoff;
He does so; and with rifles picks them off.
He's told to do to all as he'd be done
By, and he therefore blows them from a gun;
To bless his foes 'he hangs them up like fun,'
Such inconsistencies will men pretend;
Such blasphemous apostacies defend,
To slake a passion or to serve an end."

The point which, in the matter of war, is vulnerable to satire, is quite missed in the above verses, and, indeed, in all that we have ever read upon the subject. War itself, under certain circumstances, especially the war for the sake of peace—which St Augustin says, is the only justifiable kind of war—has, to say the

least of it, such strong reasons in its favour, as entirely to exempt it from that obviousness of evil and moral absurdity, which is proper to the themes of the satirist. It is the exaggerated and false idea of glory and heroism in war—the error rather of civilians than of true soldiers—which offers the appropriate object to the wit and indignation of the poet. War, at best, is a grievous necessity; and, in its least fearful shapes, involves so much misery, that no thoughtful man, in waging it, could be thinking much of the glory of successes at such cost; but, were it otherwise, could he allow the thought of glory to occupy his mind in such connection, it would only be to discern, that there are few kinds of action into which real heroism enters so little as into that of fighting. To lead a forlorn hope, to fire the engine which is to blow open a town-gate, is a kind of enterprise which, from the nature of the case, can rarely be undertaken in a state of mind that admits of the exercise of true courage, which is a deliberate virtue, and one which is not to be tested by an act resolved on in a moment probably of frantic exaltation, and very possibly executed with nerves braced by the consideration, that the alternative of retiring from such resolve, is the more formidable danger of the two.

> The courage corporate that drags
> The coward to heroic death,

and makes him equal, in his external action, to the truly brave, who are his companions, is surely not a virtue which we ought to honour, as it has hitherto been honoured. It has been the subject of much lamentation, that our recent wars have given rise to no good war-poetry. We are rejoiced to hail, in this circumstance, a proof that good poets—who are always ahead of their generation in their moral philosophy—begin to perceive the shallow and unpoetical character of the glory which their predecessors sang so loudly and effectually, because believingly.

Mr Lowell, in satirizing war, pursues the same erroneous track as Mr Bailey; but with what inimitable humour!

> "We were gittin' on nicely up here to our village,
> With good old idees o' wot's right an' wot aint,
> We kind o' thought Christ went agin war an' pillage,
> An' that eppyletts worn't the best mark of a saint;
> But John P.
> Robinson, he
> Sez this kind o' thing 's an exploded idee.

* * * * *

We conclude our extracts from the Biglow Papers, with a passage, the writing and publishing of which shows more moral courage in Mr Lowell than would go to the winning a Victoria Cross in an ordinary battle-field. A century hence, Old America

will feel grateful and proud of a poet who dared to tell Young America such truths, à propos, of the Mexican War, as these :—

* * * * *

"An' here we air ascrougin' 'em out o' thir dominions,
Ashelterin' 'em, ez Caleb sez, under our eagle's pinions,
Wich means to take a feller up jest by the slack o' 's trowsis,
An' walk him Spanish clean right out o' all his homes an' houses;
Wal, it doos seem a curus way, but then hooraw fer Jackson!
It must be right, for Caleb sez it's reg'lar Anglosaxon.

* * * * *

"*Thet our nation's bigger 'n theirn an' so its rights air bigger,*
An' thet it's all to make 'em free thet we air pullin' trigger,
Thet Anglo Saxondom's idee 's abreakin' 'em to pieces,
An' thet idee's thet every man doos jest the thing he pleases.
Ef I don't make his meanin' clear, perhaps in some respex I can,
I know thet 'every man' don't mean a nigger or a Mexican."

We will not wash the racy flavour of these lines out of the reader's mind with any more of the watery "satire" of Mr Bailey. It is certain that Mr Bailey is a poet, though by no means one of a high order of power; but his pretensions to be a *satirist*, are scarcely to be considered with patience. The "Age" is void alike of malice and geniality—those two apparent contraries which good satire always reconciles. Mr Bailey flogs the vices and follies of the time, with a rod of rushes pickled in milk-and-water.

Mr Bailey's volume, however, contains many passages of *poetry*, which at once remind us of the author of "Festus," and redeem it from the utter insignificance of such pieces as that called "Humbug Attacked"—the *satire* of which is quite as good as Mr Bailey's, and remarkably like it in style. Here is a specimen of what Mr Bailey can do, when he does not mistake his vocation.

"As the poor shell-fish of the Indian sea,
Sick—seven years sick—of its fine malady,
The pearl (which after shall enrich the breast
Of some fair princess regal, in the West),
Its gem elaborates 'neath the unrestful main,
The worth proportioned to its parent pain,
Until, in roseate lustre perfect grown,
Fate brings it forth, as worthy of a throne;
So must the poet, martyr of his art,
Feed on neglect, and thrive on many a smart."

Occasionally, and among a wilderness of common places, we find a truth put in a pointed and impressive way, as thus :—

"If to Judæa we our worship trace,
If our best learning to Achaia's race,
If Europe owes to Rome her noblest laws,
The freedom of mankind is England's cause.

To law, to learning, to religion, she
Adds Heaven's own element of liberty."

This poem of Mr Bailey's is curiously unlike his other works in its general character. "Festus" is a very laboured production; this is a very slovenly one. "Festus" is the most ambitious poem ever undertaken; this is comparatively very humble in its pretensions. We have a real admiration for the abilities which Mr Bailey has indicated—rather than displayed in each case. If he could but be persuaded to know the nature and limits of his powers, he would almost certainly be able to extend his reputation as a poet, far beyond the circle of that unhappy coterie in which at present he is exclusively approved, and would win the applause of persons whose applause is fame. There are *hundreds* of passages in "Festus," and many in "The Age," each of which contains matter for a short, separate, poem. Indeed, these passages are essentially independent pieces; but their effect is lost by their position, in a long work. Mr Bailey has not the power of writing a long work which shall have a vital totality and completeness; and, in this, he is only like many a poet, who has won enduring fame by small pieces of perfect truth, tenderness, and finish. Why cannot Mr Bailey and the other poets of his school, adopt this plan. They are most of them men of too much perception not to have been considerably annoyed at the way in which their works have been received by those whose approval they must know to be alone worth having.

There are two little pieces lately published by an American, Mr W. A. Butler, which deserve a few words from us. They are called "Nothing to Wear," and Two Millions;" and are very hastily executed satires upon the abuses of wealth by the ignorant and vulgar. They have had a considerable circulation among a certain not very select class of readers; and display a freedom in the management of verse, and an occasional sense of humour, which, if properly cultivated and applied, might make Mr Butler's writings sought out by others than idlers at railway stations. Mr Firkin, with

"His visible coach outside the visible Church,"

is the representative of an increasing class who are as fair marks for satire as ever existed; but we can only regret that in "Two Millions," as in "The Age," some good subjects are blown upon and spoiled. We would strongly recommend Mr Butler and all persons who have faculties, and waste them, to reflect that they are only a worse development of the Firkin type. Firkin abuses the stewardship of a material estate; they waste the far more potent wealth of mind.

ART. X.—1. *The Atlantic Telegraph. A History of Preliminary Experimental Proceedings, and a Descriptive Account of the Present State and Prospects of the Undertaking.* Published by order of the Directors of the Company, July 1857. Pp. 70. London.

2. *Elemens de Telegraphie sous-marine.* Par A. DELAMARCHE, Hydrographer to the Navy, and Officer of the Legion of Honour. Paris. 1858. Pp. 92.

3. *Sur le Telegraphe sous-marine Transatlantique.* Par M. BLAVIER, in the *Annales Telegraphiques*, No. I. Paris. 1858.

4. *On the Origin of the Submarine Telegraph, and its Extension to India and America.* By JOHN W. BRETT, London; in the *Reports of the British Association.* 1854. P. 7.

5. *On Magneto-Electricity and Underground Wires.* By EDWARD B. BRIGHT. Liverpool. *Id. Id.* P. 8.

6. *Experimental Observations on an Electric Cable.* By WILDMAN WHITEHOUSE. *Id. Id.* 1855. P. 23.

7. *On Improvements in Submarine and Subterraneous Telegraph Communications.* By C. F. VARLEY. London. *Id. Id.* P. 17.

8. *On the Submergence of the Atlantic Telegraph Cable.* By Capt. N. S. NOLLOTH, R.N. From *the Journal of the United Service Institution*, Vol. II. London. 1858.

9. *On the Origin and Progress of the Oceanic Electric Telegraph, with a few Brief Facts, and Opinions of the Press.* By JOHN W. BRETT. London. 1858. Pp. 104.

10. *The Museum of Science and Art.* By DIONISIUS LARDNER, D.C.L. Vol. III. London. 1854.

11. *On the Effects of Induction on long Submarine Lines of Telegraph.* By Professor WILLIAM THOMSON, LL.D., F.R.S.

WERE we called upon to enumerate the true wonders of the world,—those great gifts to civilisation which the highest reason never ventured to anticipate, and which evince more than any other the genius of our race,—we would name the steam-engine and its application to fixed machinery and to vessels and carriages,—the system of railway locomotion,—the electric telegraph,—the telescope and microscope,—the voltaic battery,—the electromagnetism of Oersted,—the electrotype,—gas illumination,—the electric light,—the Daguerreotype and Talbotype,—and the submarine Atlantic telegraph.

The last of these inventions, though neither the greatest nor the most useful, is perhaps the most marvellous. Even when the various discoveries which it combines were familiar to philosophers, it was no mean effort of genius to apply them in the construction and deposit of a submarine telegraph; and, when

cables had been stretched and in operation over short distances, and under shallower seas, it required a deep faith in the resources of science to contemplate their extension across the Atlantic. When Franklin tamed the lightening, and brought it down to do menial work in his laboratory, he little thought that the fire which flashed through the string of his kite, would join the world of civilisation to the young republic, which he loved. When Le Monnier and Sir W. Watson carried the electric influence through 6000 feet of wire, the idea never occurred to them that the transmitted shocks could be combined into signals and into words. When the humble resident in Renfrew, whose name exists only in the shadow of his initials, published "An Expeditious Method of Conveying Intelligence from one Place to another, without the Electricity being sensibly abated by the length of the Wire,"[1] he never dreamt that his unnoticed and perhaps ridiculed proposal, would be universally adopted,—that his "sets of wires, equal in number to the letters of the alphabet," would be reduced to *one*, and that this one would spread itself, like a spider's web, over the four quarters of the globe, and finally pass across the widest and deepest of its oceans. When Volta invented the battery which has immortalised his name, and Professor Oersted discovered electro-magnetism, they never contemplated their telegraphic applications. Nay, even when Cooke and Wheatstone established the electric telegraph in England, and patented their inventions for working it, they never looked forward to its submarine extension.

We do not know who had the merit of first suggesting a Submarine Telegraph.[2] The frequent use of subterranean, or buried telegraphic wires, which must have often passed through marshy ground, and even across brooks and rivers, could not fail to suggest the practicability of submarine cables; but, whoever may have hazarded the idea, it seems beyond a doubt that the Messrs

[1] This proposal was published under the signature C.M., in the *Scots Magazine* for February 1753, and will be found at full length in our article on the Electric Telegraph, February 1855, vol. xxii., p. 548.

[2] A writer in the *Quarterly Review* (June 1854, vol. xcv., p. 151) makes the following statement:—"As long back as the year 1840, as we find by the Minutes of Evidence in the Fifth Report upon Railways, wherein the subject of electric telegraphy was partially examined, that whilst Mr Wheatstone was under examination, Sir John Guest asked, 'Have you tried to pass the line through water?' to which he replied, 'There would be no difficulty in doing so, but the experiment has not yet been tried.' Again, on the Chairman, Lord Seymour, asking, 'Could you communicate from Dover to Calais in that way?' he replied, 'I think it perfectly practicable.'" This was certainly not suggesting a Submarine Telegraph; for any person of common information would have given the same answers. In the very next paragraph the *Review* doubts the practicability of a submarine cable, till 1847, when Siemens suggested the application of gutta percha to the wires. Sir William O'Shaughnessy had actually succeeded, in 1839, *a year before* the date of the report, in depositing a submarine cable in the bed of the Hoogly.

Brett were the first that carried it into execution. So early as the 16th June 1845, they registered a "General Oceanic Telegraph Company," the specified object of which was "to form a connecting mode of communication, by telegraphic means, from the British Islands, and *across the Atlantic Ocean*, to Nova Scotia, and the Canadas, the Colonies, and Continental Kingdoms;" and, on the 23d of July of the same year, they explained to Sir Robert Peel, then at the head of the Government, the advantages which England and the Colonies would derive from its execution. A scheme, so grand and cosmical in its character, confounded the limited capacity of the minister, and Mr Brett was referred to the Lords of the Admiralty as the proper Board for "sanctioning and recommending it." It was, consequently, laid before Sir George Cockburn, the First Lord of the Admiralty; and, in order to test its practicability by direct experiment, Mr Brett offered, by means of a submarine and subterranean telegraph, "to place Dublin Castle in instantaneous communication with Downing Street, provided L.20,000 was advanced by the State towards the expense." The head of the Navy was in complete *rapport* with the head of the Treasury; and, true to its miser instincts and illiberal antecedents, the British Government rejected a scheme of general oceanic communication, which, as the Mistress of the Sea, and the protector of her vast Colonies, it was the especial duty of England to have originated and promoted.

Thus thwarted in his noble enterprise, Mr Brett sought for the patronage of foreign nations. In 1847 he obtained permission from Louis Philippe to unite England with France by a submarine line; but, though the Provisional Government of 1848 was equally favourable to the scheme, it was deemed by the public too hazardous to receive their support. Undaunted by disappointment, the Messrs Brett applied, in 1849, to Louis Napoleon, who immediately granted the concession which was solicited, and agreed to give them the exclusive benefit of their enterprise, for ten years. The public mind, however, was not yet prepared to patronise it, and only L.2000 was subscribed towards the undertaking.

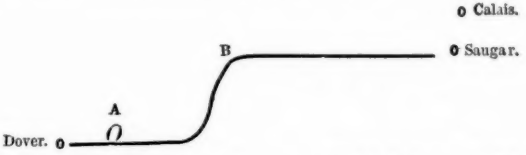
Notwithstanding these difficulties, the Messrs Brett resolved to lay down the cable at their own expense; but, before doing this, they solicited from the Admiralty the same protection and exclusive privilege which had been conceded to them by the French Government. This boon, however, was refused, and permission was granted to them to land the cable on the English coast, and thus make it useful to the nation, on the express condition, "that the public should be at no cost respecting it," and that "*it shall cease to be used, and removed whenever their Lordships* (of the Admiralty) *should think proper to order it!*"

Though thus left to their own resources, and exposed to the chance of having the voice of their telegraph hushed, and its cable removed, they commenced their great work in August 1850. A single copper wire, enclosed in gutta percha, and twenty-seven miles long, was put on board the "Goliath" steam-tug, to be paid out from a large iron cylinder, round which it was coiled. The vessel started from Dover, exciting no other feeling but one of fear on the part of the projectors, "lest this frail experimental thread should snap and involve the undertaking in ridicule. When one end was fixed in the Eastern Railway terminus, the wire was paid out and sunk by means of pieces of lead, fastened to it at distances of the sixteenth of a mile. The operation was successfully performed, and the wire landed and fixed at Cape Grisnez.[1] When the instruments were attached to its extremities, a message was sent across the channel the same evening to Louis Napoleon, the only patron of the undertaking." After several other communications had been transmitted, "the words 'All well,' and 'Good night,' were printed by the telegraph in Roman type, and closed the evening." "*The jest of yesterday*," as the *Times* remarked, "*thus became the fact of to-day.*"

Upon attempting to transmit messages, early next morning, no answer was obtained; and it was found "that the frail experimental thread had snapped," at a sharp ridge of rocks, about a mile from Cape Grisnez. The action of the waves had rubbed the cable against the rock upon which it lay, and after wearing off the gutta percha envelope, at last broke the wire. The slender wire which had thus given way had been employed by the Messrs Brett as an experimental test of the practicability of the enterprise, and not with the conviction that it would be the permanent line of communication. The result of the experiment was in every respect valuable. It established the great fact that a submarine cable, even with a single wire and an insulating envelope, would have been a permanent and useful telegraph if landed on a sandy beach, or if made stronger in those portions that had to rest on a rocky bottom. The Messrs Newall and Company, of Gateshead, were, therefore, employed to make a stronger cable, sufficient to resist any force, either of pressure or attrition, to which it might be exposed; and so complete was their success, that it has lasted for upwards of seven years. It is twenty-four miles long, and consists of four copper wires, the diameter of each of which is the sixteenth of an inch. Each wire is covered with two thick coatings of gutta percha, laid on in succession. The wires, thus invested, are then twisted together, and surrounded with a mass of spun-yarn soaked in

[1] The greatest depth of the channel is thirty fathoms.

grease and tar, so as to form a compact rope. Ten iron wires, galvanised (coated with zinc) are then twisted round the rope, so as to form a complete and close armour; and, in this state, weighing 180 tons, it was submerged in September 1851. After one-half of it had been paid out, a gale arose, the tug-boat broke away from the vessel which carried the cable, and the latter drifted a mile up the channel before it could be overtaken by the steamer. The consequence of this was that the cable was carried



out of its direct line, and it was doubled into a "kink" or bend, as shown at A, and an elbow, produced in its length, as shown at B. From these causes, the cable was too short to reach the French coast, and it became necessary to manufacture an additional mile of it, which being spliced to the part laid, the whole was finished, and a regular telegraphic communication established between Dover and Saugar, near Calais, on the 17th October 1851. The great problem of submarine telegraphs was now solved, and it is manifest that it is to Messrs Brett that the world is indebted for its solution.

The next cable which was laid down was between Holyhead and Dublin, or rather Howth, a distance of about sixty miles. It was executed by Messrs Newall and Company, and consisted of one wire, the insulating rope of the part in the deep sea (seventy fathoms) being enclosed by twelve wires twisted round it, while the shore end had six twisted wires. It was conveyed on twenty waggons to Maryport, and, after being put on board the Britannia at Holyhead, it was laid down in eighteen hours. The quantity of cable expended was sixty-four miles, and its total weight about eighty tons.

In 1847 Mr Brett applied to the King of the Belgians for a concession to establish a submarine telegraph from Dover to Ostend; but it was not till 1852 that he obtained it, in conjunction with Sir James Carmichael, Bart. It consisted of six copper wires, with twelve iron wires twisted round the insulating envelope of gutta percha. It was 70 miles long, weighed 500 tons, and cost L.33,000. It was made in 100 days, coiled into the vessel in 70 hours, and submerged in 18 hours, on the 4th May 1853.

The next submarine cable was laid between Portpatrick, in Scotland, and Donaghadee, in Ireland, by the Magnetic Telegraph Company. It consisted of 6 wires, enclosed by 12 wires

twisted round the insulating rope. Its length was 25 miles, it weighs per mile 7 tons, and its price L.13,000.[1]

On the 30th May 1853 a submarine cable was laid between Oxfordness, near Ipswich, and Schevening, in Holland, and thence to the Hague. It consists of 1 wire, with 12 iron wires twisted round its insulating rope. Its length is 135 miles, and its weight per mile only 2 tons. It was proposed to form this cable of 7 separate ones, and to twist them into a single great cable near the shore. Three only, however, have been laid down at a little distance from one another, their extremities being brought together at a point 3½ miles from the shore.

As our limits will not permit us to describe more minutely the other submarine telegraphs which have been executed, we shall present our readers with a list of them, which has just appeared in an American journal:—

1854, Italy and Corsica,	60 miles.	1856, Straits of Messina,	5 miles.
1854, Corsica and Sardinia,	9 „	1856, Gulf of St Lawrence,	70 „
1854, Denmark, Great Belt,	16 „	1856, Northumberland Straits,	10 „
1854, Denmark, Little Belt,	5½ „	1856, Bosphorus, - -	1½ „
1855, Denmark, the Sound,	11 „	1856, N. Scotland, Isthmus of Carso, - - - -	2 „
1855, Scotland, Firth of Forth,	6 „	1856, St Petersburg to Cronstadt, - - -	9 „
1855, Black Sea, - -	400 „		
1855, The Solent, Isle of Wight,	4 „		

The following more complete list has been communicated to us by an eminent engineer; and, though it does not contain the length of the lines, or the dates at which they were laid, it will be interesting to the reader:—

LIST OF SUBMARINE CABLES ALREADY LAID DOWN.

Dover	to Calais.	Reggio	„ Messina (Sicily and Naples).
Dover	„ Ostend.	Across the	Little Belt.
Orfordness	„ The Hague.	Across the	Great Belt.
Dublin	„ Holyhead.	Across the	Sound.
Portpatrick	„ Donaghadee.	Stavanger	to Bergen.
Carrickfergus	to Stranraer.	Granton	„ Bruntisland, across the Firth of Forth.
Spezzia	„ Corsica.	Across the	Nile.
Corsica	„ Sardinia.	Ceylon	to India (cable sent out).
Sardinia	„ Bona (Algiers).		
Sardinia	„ Malta.		
Malta	„ Corfu.		

Cape Race (Newfoundland),	to Ashphee Bay, Breton Island.	New York, Newfoundland, & London Telegraph Co.
Breton Island - -	„ Nova Scotia.[2]	
Prince Edward's Islands	„ New Brunswick.	
Portland - - -	„ The Channel Islands.	
Valentia (Ireland) -	„ Newfoundland.	

Of these lines, the one from Italy to Corsica and Sardinia, was executed by the Messrs Brett, as part of a great line to India, Australia, and China, and of another to Bona in Africa. With the view of carrying out these grand projects, Mr Brett

[1] Another cable was afterwards laid down by the "British Telegraph Company."

[2] These three lines were laid by the New York, Newfoundland, and London Telegraphic Company.

applied to the French and Sardinian Governments in 1852, and in 1853 he engaged, at his own risk and peril, to unite the islands of Corsica and Sardinia, and complete the line to Africa, depositing L.10,000 with each of the Governments as security for its performance. Mr Brett had also to raise the necessary capital; but so little faith had the public in the possibility of executing the scheme, that only a small portion of it was subscribed, and the greater part of it by Sardinia. The cables for Corsica and Sardinia, constructed at a manufactory erected for the purpose at Greenock, were sent out in the steamer "Persia" in July 1854. On reaching Genoa, Mr Brett found that the Sardinian Government had placed three vessels of war at his disposal, and that his Royal Highness Prince Carignan, several of the Sardinian ministers, and the ambassadors of England and France had come to Genoa to inaugurate this great undertaking. They set sail at night for the harbour of Spezzia, where one end of the cable was to be fixed; and the place which Mr Brett had accidentally chosen, was "a cliff under a building once occupied by the immortal Dante, and in which he composed a portion of the *Inferno*." "Here," Mr Brett adds, "the end of the cable was attached, amid a salute of 60 guns—*a scene in striking contrast to our solitary proceedings at Dover, when the first cord that ever carried instantaneous intelligence from continent to continent, was submerged.*" These submarine cables, which were the first and the largest ever laid in great depths, contained each *six* wires of communication, beneath the sea, and they were joined to about 500 miles of telegraph, which were at the same time constructed through the most impracticable wilds in the two islands—the total length of the electric lines, submarine and aerial, being 3000 miles.

The really difficult part of this great enterprise remained to be executed; and though only recently carried into effect, the history of its first failure is interesting and instructive, and places in a favourable light the adventurous spirit, and the indomitable perseverance, of Mr Brett. The submarine cable for uniting Sardinia and Algeria, was made in 1854. It was 144 miles long, weighed 1200 tons, and, including coals, it required a steamer of 2000 tons to carry it, which, owing to the Russian war, could not be got either in France or England. In the meantime, the Emperor, at Mr Brett's request, had soundings taken between Sardinia and Africa. These soundings gave depths of 3000 metres, or nearly two miles; which are more than 50 or 60 times the depth in the English Channel. At this time it was considered impracticable to submerge cables beneath such a height of water; but Mr Brett resolved to carry out his contract, and, as the time allowed him was nearly expired, he char-

tered a sailing vessel, and with it, and an old steamer ferry-boat sent him from Algiers, he began to pay out the cable. After laying down 60 miles, however, the progress which was made, by towing the vessel, was so slow, that he lost all hope of reaching the land. He therefore cut the cable to save the 84 miles of it remaining on board, in the expectation of renewing the trial with the steamer, and raising the sunken portion of it.

In the following year, 1856, Mr Brett resumed his arduous undertaking with a smaller cable of three wires, stowed on board the steamer "Dutchman." The cable having broken at starting, Mr Brett returned to the island of Sardinia, and, having raised the end of the sunken portion, he underran it for about 18 miles; when, fearing it might snap, from a great strain coming against it, he spliced the 18 miles which was recovered, to the cable on board, so as to complete the required length of 144 miles. He then started afresh for Galita, a small island north of the coast of Tunis, believing that he had sufficient cable to reach that island, beyond which they had only 50 miles to lay, in depths not exceeding 50 fathoms. Contrary currents, however, disappointed his expectations. After a successful run for three days nearly (from the 12th to the 15th August), during which they had passed all the great depths, they found that the steamer had drifted so far out of its course, that it would be impossible to reach Galita, having only 12 statute miles on board when they were 13 miles from the shore. Under these circumstances, they changed their course, in order to reach soundings of 100 fathoms eastward; and with the hope of buoying the end of the cable. At four o'clock, however, they found themselves still about 12 miles from land, in depths of about 500 fathoms, with only half a mile of cable remaining. In this distressing emergency, Mr Brett lashed and secured the cable round the vessel, having previously sent a message through it to London, to explain his position, and order out more cable, to enable them to reach the island. He dispatched also a vessel to Algiers to obtain the necessary means for buoying the end of the cable till the desired quantity should arrive from England. "For five days and nights," says Mr Brett, "we continued to hold on with the electric cable, keeping up telegraphic communication with London from the vessel, when the cable parted on the bottom, at a depth of 500 fathoms (caused by the constant strain for the last two days and nights, by the vessels rolling and plunging in a heavy storm), on the morning of the 19th, not ten minutes after receiving a telegraphic reply through it from London, to inform us that the extra cable was in progress, and would be speedily forwarded to us."

The "Tartare," which had been sent to Algiers for assistance,

was an old Algerine coast passage boat, capable of making only five knots an hour. She took six days to go and return with the buoys and a lighter vessel, to which Mr Brett hoped to secure the end of the cable after it broke; but as she did not arrive till six hours after the accident occurred, her services were useless, since it was impossible to fish up the end of the cable.

The enterprise thus abandoned, was subsequently undertaken, and successfully accomplished, by the French Government in 1857, when Spezzia, in Sardinia, was united by a submarine cable with Bong in Algiers. Mr Brett employed Messrs Newall and Company to execute the cables for this line; and, in conformity with his views, three wires were employed. They committed, however, the same error that Mr Brett had done, in not having a sufficient length of cable for the purpose, and were obliged to wait till other 12 miles of it were obtained from England. Two of the wires were found to be ineffective, so that the communication has been maintained by only one of the three. An attempt was made in 1857, and another in the present year, to repair the two imperfect wires; but neither of them has been successful.[1]

Although this bold attempt, conducted with so much spirit and skill, failed at first from the want of 12 miles of wire, it proved what was thought impossible, that cables could be laid in depths of two miles, and that an Atlantic Telegraph was a practicable undertaking. The history of this great cosmical enterprise, now happily accomplished, forms one of the most interesting chapters in the annals of the world. An accident, indeed, to which the greatest, as well as the most trivial, undertakings are liable, has for a while placed its functions in abeyance; but an electric cable has been laid between the Old and New worlds, upon a platform made by Providence for its reception. Messages have been transmitted between the indwellers of the East and the West; and what has been once done, may be done again. Science is omnipotent within its own domains; and it is, doubtless, in its power even to girdle the globe with metallic paths, along which human sympathies shall vibrate and divine intelligence be conveyed.

The submersion of telegraphic cables in seas of moderate depths and breadths, could not fail to suggest their more extended application; but it required more than ordinary faith in the resources of science to contemplate the practicability of spanning the Atlantic. In October 1842, Professor Morse of New York, had stretched a submarine conducting cable from Castle Garden to Governors Island, and transmitted an electric

[1] About 40 miles of the cable laid down by Mr Brett in 1854 were fished up during these attempts to repair the two inefficient wires.

current from one end to the other. On the faith of this experiment, "he demonstrated to a committee of the American Institute the possibility of effecting electrical communication through the sea, although the transmitting cable was dislodged by the anchor of a vessel almost as soon as telegraphic operations had commenced," and the gold medal of the Institute was adjudged to him "as an acknowledgment of his success." Having continued his investigations, he announced to the Secretary of the United States Treasury,[1] "that a telegraphic communication on his plan might with certainty be established across the Atlantic;" and, he added, that, "startling as this statement may *now* seem, the time will come when this project will be realised." The short submarine cable, however, which Professor Morse had constructed, and even the longer one which Sir William Shaughnessy had stretched beneath the Hoogly, were not sufficient guarantees that an iron wire could be embalmed and buried in the depths of the Atlantic. Experiments on a greater scale were required to justify so gigantic an enterprise, and it is to the Messrs Bretts that we are indebted for these great undertakings, which, as we have already seen, were the pioneers of the Transatlantic Telegraph.

After the idea of a Transatlantic telegraph had taken possession of the public mind, various important problems required to be solved before any attempt could be made to realise it. In what part of the Atlantic basin could a submarine cable be safely deposited, so as to be undisturbed by ocean currents and other influences to which it might be exposed, was the first problem which presented itself to the engineer. The shortest path from Europe to America was *cæteris paribus* the most desirable; but, this line might pass over the greatest depths and the most rugged bottom, to render impracticable the submersion of the cable. The basin of the Atlantic is a long trough or groove stretching nearly from pole to pole, having an irregular and rugged bottom nine miles, at its deepest point, below the highest peak of the Andes. In a line passing from the Andes through Yucatan, Cuba, Hayti, Porto Rico, the Windward Islands, and the Cape de Verd Islands, to Senegambia, in Africa, the bottom presents sharp peaks and crested ridges, with precipitous flanks; so that if a cable were deposited upon such a bottom, it would, at some places, be suspended upon sharp and lofty peaks, and at others, would be bent up and down in a "zig-zag" form, while it would elsewhere hang upon precipitous walls thousands of feet high, and probably break from its own enormous weight. In a section of the bottom of the Atlantic, from south to north, passing through the Cape de Verd Islands, the Azores Islands, and across the line joining

[1] In a letter dated August 10th 1843.

Ireland and Newfoundland, the same alpine character prevails. But, though this is the general conformation of the bottom of the Atlantic basin, the officers of the United States Navy, in their submarine survey of it, by a new and ingenious sounding apparatus, discovered that there was a comparatively shallow platform, or ridge, extending from Cape Clear in Ireland, to Cape Race in Newfoundland, a distance of 1640 miles, and separating the Atlantic from the Northern Ocean. This ridge is about 400 miles wide, and is less than 12,000 feet, or two miles, in depth. It forms the shortest distance between the Old World and the New, and is so peculiarly fitted to be the bed of a submarine cable, that Captain Maury, by a happy anticipation, gave it the name of the *Telegraphic Plateau*. It is a remarkable circumstance, that this ridge is not covered with a deposit of sand, but by a layer of delicate shells, proving that "the depths are there calm and undisturbed; and that, if a telegraphic cable were once lodged upon this impalpable deposit, it would soon be entirely covered over by fresh settlings, even if it did not at once sink into it by the mere influence of weight." The little dead silicious monads, of which this deposit consists, agglutinate themselves round masses of metal buried in their layers,[1] and, it is believed, that a submarine cable laid down in this cemetery of the *Diatomaceæ* will, in a few years, "be built in by a flinty pavement, which no trifling force could penetrate, and will become an integral and permanent part of the ocean bed." From the total absence of sand, or of the smallest particle of gravel among the little shells which cover the plateau, Lieutenant Maury has inferred that there is there no motion to abrade them, nor current enough "to sweep them about and mix up with them a grain of the finest sand, or the smallest particle of gravel torn from the loose beds of debris that here and there strew the bottom of the sea." "The plateau," he adds, "is not deep enough for the wire to sink down and rest upon; and yet it is not so shallow, that currents or icebergs, or any abrading force, can derange the wire after it is once lodged upon it." In support of this opinion he asserts, that these organisms could not have been rolled along the bottom at 2000 fathoms. At this depth, the pressure is 6000 pounds upon the square inch; and, if the gulf stream, at four knots an hour, reached this depth, with that velocity and pressure, its scouring action under such a weight and motion, would fret and tear up the very bed and bottom of the sea.

Although these facts and views pointed out the line from Ireland to Newfoundland as the best locality for the Atlantic cable,

[1] Anchors have been picked up from the bottom of the sea encrusted with this concrete to the thickness of several inches.

yet fears, not very unreasonable, were entertained, that a cable of such an enormous length, could not be securely deposited, and that it might not readily transmit an electric influence of moderate intensity. It was therefore proposed to carry the cable from the most northern point of Scotland, through the Shetland, Orkney, and Farœ Islands to Iceland; to take it from Iceland to Greenland by the shortest path; and from thence along the coast to Cape Farewell, where it would cross Davis Strait, and stretch across Labrador and Upper Canada to Quebec, to join the telegraphs of North America. This proposal, however, though a cable larger than 900 miles was not required, did not meet the views of parties most interested in a Transatlantic telegraph; and though it has to some extent been advocated by a writer in the *Quarterly Review*, and supported by some eminent individuals, it has by others been regarded as wild and impracticable.

The formidable difficulty of depositing a cable across the Atlantic having been removed by the discovery of a shallow platform coinciding with the shortest path, the Colonial Government of Newfoundland undertook the gigantic enterprize of establishing a telegraphic communication between the Old and New World. In the month of April 1854, they passed an Act incorporating a Company for that purpose, and "the same Legislature" expressed its interest in the scheme by grants of land and a subsidy, and by conferring the exclusive right to land a telegraphic line upon the coast under its jurisdiction along the entire length of Newfoundland and Labrador. A charter of a similar kind was obtained from the Government of Prince Edward's Island, and from the State of Maine; and, beside obtaining a ratification of its rights from the Home Government, the Company received authority for certain subsidiary operations in Canada.

The Company, thus wisely incorporated, under the title of "The New York, Newfoundland, and London Telegraph Company, immediately commenced their operations. England and the Continent of Europe having already been telegraphically connected with Ireland, the Company, under Professor Morse, as their Electrician, proceeded to connect St John's in Newfoundland with lines in British North America and the United States, by submerging 13 miles of cable in the Straits of Newfoundland, and 85 miles in the waters of the St Lawrence. Having completed these preliminary arrangements, they proceeded to the grand operation of laying the Transatlantic cable,—a task which required all the theoretical and practical wisdom which they could command. The electrical influence had passed through a few hundred miles of submerged cable, but no experiment had yet been made, and no theoretical grounds had yet been assigned, to justify

the expectation that electricity could freely traverse a cable 2500 miles in length. In order to settle this question, Mr Wildman Whitehouse, the Electrician of the Company, and Mr, now Sir Charles Bright, its engineer, and the engineer of the Magnetic Telegraph Company, began a series of experiments, which they prosecuted conjointly and separately, in order to determine the influence which might be exercised by inducted and disguised electricity, in retarding the transmission of currents along submarine wires of unusual length.

When metallic wires are, as in the Electric Telegraph, extended from post to post, or laid in subterranean tubes, and insulated by the surrounding air, and by glass or earthenware supports, the electricity runs along as a simple stream, undisturbed by any secondary cause. Professor Wheatstone found its velocity, in a copper wire, to be 288,000 miles in a second, but other observers have reduced it to 112,000, 62,000, 28,000, and even 16,000 miles, in a second.[1] But when the wires are invested with a layer of gutta percha, or any other insulating substance, and placed in damp air or an envelope of metal, the induced electricity retards, in a very marked degree, the transmission of the current. This remarkable property was discovered by M. Siemens, in the subterranean system of telegraphic wires which he introduced upon all the Prussian and several of the German railways. The copper wires having been carefully covered with gutta percha in order to prevent the escape of electricity into the damp air of the tubes which contained them, he observed a very visible diminution in the velocity and intensity of the transmitted current, and he discovered that this effect was produced by inverse or induced currents arising from the wires performing the part of a Leyden jar. The electricity which enters at the knob of the jar, and charges the metallic coating in its interior, corresponds with the electricity passing along the telegraphic wire. The glass of the jar is analogous to the gutta percha coating of the wire, and the external coating of the jar to the external metallic envelope of the gutta percha. The two opposite electricities, thus generated in the wire, as in the jar, attract one another, and the electricity in the wire is thus prevented from moving freely in its course. The submarine cable is therefore an elongated Leyden jar, rather than a simple channel or pipe, open freely at both ends, and hence every time that it is used, it has to be charged and discharged like the phial, or first filled and then emptied. In the year 1851, when six wires, covered with gutta percha, were laid along a distance of 41 miles, the retarding power of the induced electricity was distinctly observed, and it was greatly increased when the six wires formed one continued circuit. In continuing

[1] See this Journal, vol. xxii., p. 555.

these experiments, Sir Charles Bright, the engineer of the Company, found, that "on an underground length of 480 miles of gutta percha covered copper wire, the voltaic or magnetic impulse varies in velocity through such conductors, from 960 to 1700 miles per second, according to the intensity of the current employed." From these facts, communicated in 1854 to the British Association by Mr Edward B. Bright, he concludes, "that the speed with which electricity passes, varies with the energy (that is, intensity) of the current, and also with the nature or conditions of the conductor through which it passes. Underground wires," he adds, "are only affected by terrestrial electricity, when a flow takes place from one district of the earth's surface to another; while overground wires are also subjected to the action of perturbative currents whenever the electrical *status* of the atmosphere changes as regards the earth, principally with the rise or fall of dew, or during the Aurora Borealis."

We regret that we cannot, without the use of diagrams, give an intelligible account of the various experiments made by Mr Whitehouse and others, to prove that the retardation produced by induction, would not be so great as to affect seriously the working of a cable stretching across the Atlantic; and that, "by employing the induced magneto-electric current, and reversing the quality of the electricity transmitted at each signal, a velocity and facility of work might be attained which would satisfy all merely commercial and financial requirements in such a line as one crossing the Atlantic. To satisfy the public mind, however, it was desirable, and even necessary, to record an actual signal transmitted through 2000 miles of circuit, of the same length nearly as the span of the Atlantic. It was accordingly arranged by Sir Charles Bright and Mr Whitehouse that the line should be made with the *subterranean* or submarine wires of the English and Irish Magnetic Telegraph Company; and, on the evening of the 9th October 1856, the parties most deeply interested met at the offices of the Company, in Old Broad Street, London. *Ten* wires, insulated with gutta percha, and 200 miles long, were connected so as to form a continuous circuit of 2000 miles, the circuit being virtually increased to 2300 miles by the coils of fine wires introduced at the joints. The wires were excited by Mr Whitehouse's magneto-electric induction coils, and the current operated upon one of Professor Morse's recording instruments. By this means, signals were distinctly telegraphed through 2000 miles of wire at the rate of 210, 241, and, upon one occasion, 270 per minute. Hence, if we suppose *ten* words to be transmitted in a minute, as Professor Morse has calculated, we shall have *twenty* messages transmitted in an hour, 480 in 24 hours, or 14,400 words per day. At the close of 1856, therefore, as Dr Morse has

stated in the Report issued by the Company, the following important results were obtained:—

"1. That gutta percha covered submarine wires do not transmit as simple insulated conductors, but that they have to be charged as Leyden jars before they can transmit at all.

"2. That, consequently, such wires transmit with a velocity that is in no way according to the movement of the electrical current in an unembarrassed way along simple conductors.

"3. That magneto-electric currents travel more quickly along such wires than simple voltaic currents.

"4. That magneto-electric currents travel more quickly when in high energy than when in low; although voltaic currents of large intensity do not travel more quickly than voltaic currents of small intensity.

"5. That the velocity of the transmission of signals along insulated submerged wires can be enormously increased, from the rate indeed of one in two seconds, to the rate of eight in a single second, by making each alternate signal with a current of different quality, positive following negative, and negative following positive.

"6. That the diminution of the velocity of the transmission of magneto-electric current in induction-embarrassed coated wires, is not in the inverse ratio of simple arithmetical progression.

"7. That several distinct waves of electricity may be travelling along different parts of a long wire simultaneously, and within certain limits, without reference.

"8. That large coated wires used beneath the water or the earth are worse conductors, so far as velocity of transmission is concerned than small ones, and therefore are not so well suited as small ones for the purposes of submarine transmission of telegraphic signals; and,

"9. That, by the use of comparatively small coated wires, and of electro-magnetic induction-coils for the exciting agents, telegraphic signals can be transmitted through two thousand miles, with a speed amply sufficient for all commercial and economical purposes."

These important questions having been settled, steps were taken to organise an influential company to execute the Transatlantic Telegraph. The incorporated New York, Newfoundland, and London Company, who had done everything to promote the preliminary investigations, deputed their Vice-President, Mr Cyrus Field, to visit England to effect this object; and he was fortunate enough to succeed in forming the present "Atlantic Telegraph Company," consisting of the holders of 350 shares of one thousand pounds each; and having Sir Charles Bright and

Mr Whitehouse as their engineer and electrician. The charter of the Old Company, who possessed for fifty years the exclusive right to land electric cables on the shores of Newfoundland and other parts of America, was made over to the New Company, with all the patent rights of Messrs Whitehouse and Bright; and the projectors, Messrs Brett and Field, and Messrs Bright and Whitehouse, liberally agreed that compensation for their past labours and inventions should be wholly dependent on the success of the undertaking. The prospectus of the Company was issued on the 6th November 1856; and, in one month, the whole capital of L.350,000 was subscribed. The Governments of Great Britain and the United States agreed, by a contract of twenty-five years duration, to pay to the Company, till its dividend reached 6 per cent., a subsidy of L.14,000 a-year, and of L.10,000 subsequently, and to furnish ships for laying down the cable.

The plateau of Lieutenant Maury having, for the reasons already mentioned, been fixed upon as the line of the telegraph, in preference to the circuitous line by Iceland and Greenland, and to the line from the United States through the Azores and Cape de Verd Island, which the American authorities would have preferred, it became necessary to determine the nature and weight of the cable to be employed. Mr Brett had experienced great difficulties in laying down a heavy cable in a deep and troubled sea; and, it was obvious, that a light cable would be at the mercy of the ocean currents as it went down. It was necessary, indeed, that the bulk and weight of the cable should be such, that two vessels of ordinary size, could take the entire cable into their holds, with all the necessary apparatus, each vessel carrying 1250 miles, or one-half of it. In order to fulfil these and other conditions, the cable required to weigh a ton per mile, to be flexible enough to be formed into coils, and to have such a structure that it could be readily bent, and yet be able to lie as a rigid line. Numerous experiments were made to determine the best composition of the cable; and no fewer than sixty-two different kinds of ropes were tried before its exact form and character were fixed upon.

In the cable finally adopted, the centre wire is a *strand*, composed of seven wires of pure copper. It is about the 16th of an inch in diameter, and consists of one straightly drawn wire, with other six twisted round it. When exposed to strain, the strand stretches 20 per cent.; and hence, fears were entertained that, in the paying-out, it might be drawn out and attenuated to such a degree as to diminish greatly its power of transmitting electrical signals. Mr Whitehouse, however, proved, by very ingenious experiments, that the strand might be stretched one thousand feet in a mile without being broken, and without its power of trans-

mitting electricity being materially impaired. The next step in the formation of the cable, is to give it a coating of gutta percha in three separate layers, so as to enlarge its diameter to about three-eighths of an inch; and in this state the strand and its coating are called "*the core*" of the cable. In trying the insulating power of the gutta percha, Mr Whitehouse found that it was greatly impaired by an increase of temperature—a change which it is not likely to experience at the bottom of the sea, where the temperature cannot exceed 42° of Fahrenheit.

When the core is completed, it is wound tightly round by a serving of hemp, saturated with a combination of pitch and tar; and when it has been everywhere reduced to the same diameter, it is converted into a complete cable, by enveloping it in eighteen threads of polished iron wire, which are firmly twisted round the central core. Each of these strands consists of seven iron wires, of the same diameter as those in the copper core, so that this core is protected from mechanical violence by 126 wires, which also give such a weight to the cable as may facilitate its submergence.

In the cable thus completed, 332,500 miles of iron and copper wire have been employed,—a length which would girdle the earth thirteen times. The cable weighs from 19 hundredweight to 1 ton per mile, and will bear, without injury, a strain of four tons. In sea-water, its weight will be scarcely 24 hundredweight a mile; and, as the greatest depth will be little more than two miles, the greatest strain in depositing it from the ships will be less than a ton and a half for two miles.

In order to deposit the cable in the bed of the Atlantic, the British Government placed at the service of the Company the line-of-battle ship "Agamemnon," of 91 guns, Captain Noddall, which carried the flag of Lord Lyons in the Black Sea; while the United States Government sent over its fine new frigate, the "Niagara," Captain Hudson, a vessel of 5200 tons, 715 feet long, and 56 wide. The "Agamemnon" was singularly adapted for receiving the cable, from its having a magnificent hold, 45 feet square and 20 feet deep, between the lower deck and the keel. The "Niagara" was not so well-fitted for its work, from having no space in her hull capable of allowing her half of the cable to be packed into a single circular coil; but her officers gave up a portion of their fine ward room, in order to allow the cable to be stowed in the best possible manner. In order to convoy and assist these vessels, the United States sent the frigate "Susquehanna," Captain Sands, and the British Government Her Majesty's ships "Leopard," Captain Wainwright, and "Cyclops," Captain Dayman.

It had been at first arranged that the vessels should proceed

to mid-ocean, join the ends of their halves of the cable in a spot a little to the north of 52° of latitude, and in 32½° of longitude, and then separate, the "Niagara" laying down her half towards Newfoundland, and the "Agamemnon" her half towards Valentia; but this plan was changed, the "Niagara" paying-out her share of the cable to mid-ocean, where the "Agamemnon" would join her half and proceed to Newfoundland.

After leaving Valentia on the evening of the 7th August 1857, the cable was payed out from the "Niagara" in the most satisfactory manner. At the junction between the shore, or larger cable, and the smaller one, about eight miles from Valentia, it was necessary to stop in order to renew the slice. The end of the heavier cable was then lowered, and buoys attached to mark the place of union. On the 9th at noon, 136 miles of cable were deposited, and at midnight 189 miles. On the 10th, at four o'clock in the morning, the depth of water had increased rapidly from 550 fathoms to 1750, in a distance of eight miles. Hitherto a strain of 7 cwt. had kept the rate of the cable sufficiently near to that of the ship; but, owing to the deepening of the water, the cable ran out more rapidly, and it became necessary to increase the pressure to 15 cwt., while the cable and ship were running 5½ and 5 knots an hour. At noon on the 10th, 255 miles of cable were laid down; but an increasing swell having taken place, and the depth of water become 2000 fathoms, the strain was increased to a ton, in order to keep the rate of the cable and the ship in due proportion. Soon after this the speed of the ship was only 3 knots, while that of the cable was 5½ to 5¾ knots. The strain was, from the same cause, successively increased to 25, 30, and 35 cwt. The rate of the cable was thus brought to 5 knots, at which it continued till 3h. 45m., when it parted, the length paid-out being then 335 miles.

During these operations Mr Bright had assisted personally at the operation of the breakers; but, being obliged for a while to attend to other duties, the machine was for the moment left in charge of a mechanic acquainted with its action. When Mr Bright was on his way to the fore part of the ship, he heard the machine stop. He immediately called out to ease the break and reverse the engines of the ship; but, when he reached the spot, he found that the cable was broken. The breaks had not been released, and to this, or to the hand wheel of the break being turned the wrong way, he attributed the stoppage and the fracture of the cable.

Disheartening as this failure was, the engineer, and all parties on board, and the directors themselves, regarded it as the result of an accident not likely to occur again. The cable itself having been found uninjured, and the paying-out machine in perfect order,

the only sudden declivity of a serious kind, from 410 to 1700 fathoms, had been safely overcome. The only difficulty which remained was to demonstrate the practicability of making the splice in mid-ocean, and this was proved experimentally by the engineer, in a heavy sea, after the accident had occurred, and before the ships returned to England. The two ends on board the "Niagara" and "Agamemnon" were joined together, and the splice lowered to the bottom, in a heavy sea, to a depth of 2000 fathoms.

With the experience acquired in this unsuccessful attempt, the directors resolved to renew it in 1858, at a season of the year when there is the smallest risk of gales and fogs and ice-bergs. In order to ascertain the precise time of the year when the state of the Atlantic is most favourable for the submergence of the cable, Lieut. Maury compared meteorological observations made during 260,000 days. He found that during summer the western part of the telegraphic plateau was entirely exempt from gales; that in June and July the risk of gales in the eastern part is very small, and almost nothing in August, excepting on the coast of Ireland. In June, the western side is more liable to fogs than the eastern. Ice occurs less frequently from June to August than at any other time, the frequency diminishing from June to August. If fogs were the only obstacles to be dreaded, the winter months would be better than the summer months. If storms are to be avoided, the month of June is the best; and, taking ice, and fogs, and storms, into consideration, Lieut. Maury came to the conclusion, "that between the 20th of July and the 12th of August, both sea and air are usually in the most favourable condition for laying down the wire." For reasons which we cannot learn, the opinion of Lieut. Maury was not adopted. The expedition, as we shall see, commenced its operations no less than *six weeks* before the 20th of July, and its failure, in so far as it arose from the storms which it had to encounter, may not unreasonably be ascribed to its not having followed the advice of Lieut. Maury.

When the "Agamemnon" and the "Niagara" had each taken on board their half of the cable, they rendezvoused at Plymouth; and, accompanied by the "Gorgon" and "Valorous," which were commissioned to convoy and assist them, they set sail on Thursday the 10th of June 1858, with the intention of commencing the deposit of the cable at the middle point of the line, the "Agamemnon" paying it out towards Ireland, and the "Niagara" towards Newfoundland. Before three days had elapsed, a gale arose, in which the ships separated from each other. The "Agamemnon" strained and laboured under her burden; and the massive beam under her upper deck coil cracked

and snapped with the noise of artillery, as if she were breaking up; and on Monday the 15th, when the gale had become more fierce, she heeled over to an alarming extent. On the 16th the "Niagara" rejoined company; and, as the wind increased, the "Agamemnon" "took to violent pitching, plunging into the trough of the sea, as if she meant to break her back, and lay the Atlantic cable in a heap." The weather improved somewhat on the 19th; but, in the evening the sky became dark, a heavy rain fell, and the wind increased to such a degree, that Captain Preedy remained on the deck throughout the middle watch, the "Agamemnon" rolling 30 degrees each way, and straining to an alarming extent. About 10 P.M., when the wind and sea had increased, three or four gigantic waves approached the ship, "rolling on like hills of green water, with a crown of foam which seemed to double their height." The "Agamemnon" rose heavily to the first wave, and then went down into the trough of the sea, falling over so as almost to capsize completely on the port side. Everything now broke adrift, and the scene, as the narrator states, almost defies description. The crew, and every thing loose, were hurled across the ship. The coals on the main deck broke loose, smashing everything before them. Another tremendous wave produced similar results; and it became obvious that two or three more such lurches would make the masts go like reeds, while half the crew might be maimed or killed below. This state of things continued till Monday the 21st, when the aspect of affairs was so alarming, that Captain Preedy resolved to try wearing the ship round on the other tack. The rolls which she had previously experienced, were mere trifles compared with those which now took place. Out of 200 men on deck, 150 were thrown down, falling over from side to side in heaps, while others, holding on to ropes, swung to and fro with every heave. The last hour of the stout ship seemed to have come. A heavy sea again struck her, and after a few more disastrous plunges, Captain Preedy, unable to contend against the storm, got up full steam, and allowed the "Agamemnon" to run before the wind, rolling and tumbling over the huge waves at a tremendous pace. On Tuesday the 21st, the ship commenced beating up for the rendezvous, from which, on Friday the 25th, they were still 50 miles distant. As the "Agamemnon" approached the place of meeting, the "Valorous" hove in sight at noon, the "Niagara" came in from the north, and in the evening the "Gorgon" from the south,—the squadron being now reunited near the spot where the great work was to commence. The place where they met was only thirty miles nearer the Irish coast than had been previously agreed upon. The "Valorous" had first reached the real rendezvous. The "Niagara"

arrived two days before the "Agamemnon," and the "Gorgon" was third.

On the evening of Friday the 25th of June, the sea was as still as an inland lake, and the four vessels lay together side by side, ready to commence their interesting work. After disentangling the cable, which had been shaken into a shapless tangled mass during the lurches of the "Agamemnon," the operation of laying it commenced on the morning of Saturday the 26th of June. The end of the "Niagara's" cable was sent on board the "Agamemnon," the splice was made, a bent sixpence put into it for luck, and at 2h. 50m. Greenwich time, it was lowered over the ships' side and disappeared for ever. When each ship had payed-out three miles, the cable broke on board the "Niagara," owing to its over-riding and getting off the pulleys. When the break became known, both vessels returned, a fresh splice was made and again lowered at half-past 7. The paying out machine now worked well, the greatest strain being only about 2500 lbs., and at half-past 3 A.M. of Sunday the 27th, forty miles had been laid down. In a few minutes after, Professor Thomson reported that the cable had parted. The "Agamemnon" was stopped to discover where the fracture had taken place; but, unfortunately, there was a strong breeze and a heavy swell, which produced a strain of 4000 lbs., that broke the cable a few fathoms beneath the stern wheel. The ships again returned to the rendezvous, to renew their labours. The "Agamemnon" rejoined the "Niagara" on Monday the 28th, and it appeared that a total fracture had taken place, at about ten miles from each ship, at the bottom of the ocean. The third and last splice was now made, and lowered in 2000 fathoms of water, at 7 o'clock the same night. The paying-out went on successfully till 9 P.M. on Tuesday the 29th, when 146 miles had been laid down, and when, without an instant's warning, the cable again parted. The machinery ceased to move; the fractured end of the cable swung loosely over the stern-wheel; the engineers, officers, and men stood aghast at the disaster, and the "Agamemnon," after seeking in vain for the "Niagara" and "Gorgon," turned its head to Cork, and, after a cruise of thirty-three days, anchored off Queenstown on the 10th July.

After making every possible arrangement to guard against future accidents, and taking on board a fresh supply of coal, the squadron set sail on Saturday the 17th of July, to resume their arduous labours. The "Valorous" reached the rendezvous in lat. 52° 5′ and long. 32° 42′ on the 24th, the "Niagara" on the 25th, the "Gorgon" on the 26th, and the "Agamemnon" not till the 28th, having had to wait for Professor Thomson, who, as one of the directors, had the charge of the electrical department on

board. On the 29th, a beautiful calm day, the "Agamemnon" joined the rest of the squadron. The splice was made at noon, and, when it had been lowered, the ships started an hour after for the last time for their opposite destinations. The cable was running out at the rate of six knots an hour, under a strain of only 500 lbs., when a large whale approached the ship's bow, threatening to come in contact with the cable, but, fortunately, it only grazed it at the place where it entered the sea. About 8 o'clock, when all was going on well, under a strain of 1700 lbs., an injured portion of the cable was discovered about a mile or two from the portion paying-out. The injury was immediately repaired; but, no sooner was this done, than Professor Thomson reported that the electric continuity of the wire had ceased, though the insulation was perfect. Regarding the injured piece as the probable cause of the stoppage, the cable was cut at that part, in order to make a perfect splice; but no sooner was this done, than it was proved by the electrical tests, that the fault was fifty miles from the ship. The splice was effected in time to save the cable, and preparations were made to pay-out as little rope as possible, and to hold on for six hours, in the hopes that the fault might mend itself before cutting the cable and returning to the rendezvous to make another splice. The magnetic needles, however, suddenly indicated either that the cable had broken from the "Niagara," or that the insulation had been completely destroyed. The alarm, however, was false; the stoppage disappeared, and perfect signals were received from the "Niagara." The paying-out went on as usual for some time, till another damaged part of the cable was discovered, and immediately repaired. On the evening of Friday the 30th, a gale arose "dead ahead" of the ship, which now went full steam against the wind, consuming such an enormous quantity of fuel, that if the wind lasted it would have been necessary "to burn masts, spars, and even the decks, to bring the ship into Valentia." On Sunday, another gale arose, and continued so severe during that night and Monday morning, that it required the most indefatigable exertions of the engineers to prevent the wheels from stopping altogether as the vessel rose and fell with the sea. On Monday the "Agamemnon" narrowly escaped a collision with the "Chieftain," a three-masted American schooner; and on Tuesday, a large American bark, which was standing right across their stern, was driven from its course by repeated volleys from the "Valorous." On the evening of the same day the "Agamemnon" reached the steep submarine mountains which divides the Telegraphic Plateau from the Irish coast. The next day was beautiful and calm; the ship was only eighty-nine miles from Valentia, and the vessels exchanged signals that they were

in 200 fathoms of water. On the morning of Thursday the 5th, the bold and rocky mountains which surround the wild neighbourhood of Valentia, appeared at a few miles distance, and by six o'clock A.M., the "Agamemnon" and the "Valorous" anchored on the side of Beginish Island, opposite to Valentia. Soon after they arrived, a signal from the "Niagara" informed them that they were preparing to land, having laid down 1030 nautical miles of cable. This was the first message that electricity conveyed across the Atlantic. The "Agamemnon" laid down 1020 nautical miles, making the total length of the cable 2050 miles. Before landing the end of the cable, it was telegraphed to the Atlantic Company, in London, that on the 30th July 265 nautical miles were laid between the two ships; on the 31st, 540; on the 1st of August, 884; on the 2d, 1256; on the 4th, 1854; and, on anchoring at six in the morning in Doulas Bay, 2022. On the forenoon of Thursday the 5th, the boats of the "Valorous" landed the Irish end of the wire at White Strand Bay, off Doulas Bay, amid the cheers and greetings of all who had assembled to receive it.

About the same time that the "Agamemnon" landed the cable at Valentia, the "Niagara" did the same in Trinity Bay, Newfoundland. Her progress was nearly the same as that of the "Agamemnon;" the length of cable paid-out by the two ships being generally within ten miles of each other.

When the eastern and western extremities of the cable were put in connection with the recording instruments, "messages to and fro" were quickly transmitted. On the evening of the 17th of August, the following message was dispatched from the directors in England to the directors in America:—

"Europe and America are united by telegraph. 'Glory to God in the highest, on earth peace and good-will towards men.'"

This message, consisting of thirty-one words, occupied thirty-five minutes in transmission.

On the 17th of August the following message was received:—

"We are now receiving from Newfoundland accurately, with perfect signals, at the rate of 100 words per hour."

Immediately after this a message from the Queen to the President of the United States, consisting of 99 words, was received at Newfoundland in 65 minutes. Both this message and the reply to it were repeated back to Valentia, to test their accuracy, and were found to have been taken with great exactness. These messages, which we cannot withhold from our readers, possess more than a temporary interest. They will be read in future ages, by the Anglo-Saxon race, when England and America shall have forgotten their animosities, and shall have united their

gigantic resources in extending to oppressed Europe and barbarian Asia, the blessings of liberty and religion.

The following is the message of the Queen:—

"From Her Majesty the Queen of Great Britain to His Excellency the President of the United States:—

"The Queen desires to congratulate the President upon the success of this great international work, in which the Queen has taken the greatest interest. The Queen is convinced that the President will join with her in fervently hoping that the electric cable, which now already connects Great Britain with the United States, will prove an additional link between the two nations, whose friendship is founded upon their common interests and reciprocal esteem. The Queen has much pleasure in thus directly communicating with the President, and in renewing to him her best wishes for the prosperity of the United States."

The following is the President's reply, which consisted of 143 words as transmitted, and occupied two hours in its passage through the cable, including several "repeats" and corrections:—

"The President of the United States, Washington City, to Her Majesty Queen Victoria, Queen of Great Britain:—

"The President cordially reciprocates the congratulations of the Queen on the success of the great international enterprise, accomplished by the skill, science, and indomitable energy of the two countries. It is a triumph, because far more useful to mankind than was ever won by a conqueror on the field of battle.

"May the Atlantic Telegraph, under the blessing of Heaven, prove to be a bond of perpetual peace and friendship between the kindred nations, and an instrument, destined by Divine Providence, to diffuse religion, liberty, and law throughout the world. In this view will not all the nations in Christendom spontaneously unite in the declaration, that it shall be for ever neutral, and that its communications shall be held sacred in passing to the place of their destination even in the midst of hostilities. (Signed) "JAMES BUCHANAN."

Three other congratulatory messages of considerable length—two from Newfoundland and one from England—were transmitted on the 18th, 21st, and 23d of August: the *first* from Mr Cooper, the President of the New York, Newfoundland, and London Telegraph Company, to the Directors of the Atlantic Telegraph Company Lines; the *second*, from the Mayor of New York to the Mayor of London; and the *third*, the reply of the Mayor.

It is impossible to read, without emotion, these interesting messages from the earliest, which gave the glory to Him who created the subtle element that spoke across the deep—the material along which it flashed its voice, and the genius which developed its laws—to the latest, which breathed the ardent wish

that peace and good-will should reign between hitherto unfriendly nations, born of the same blood, speaking the same tongue, and rejoicing in the same faith. The union of the East and the West, of the Old World with the New, were topics universally discussed by the people and the press of America. They were the theme of private and public thanksgiving,—and the Christian pastor did not hesitate to speak of them in the sanctuary—to associate them with the extension of his faith, and to view them as the harbinger of those glorious times when there shall be "peace on earth and good-will towards men."

Not content with these quiet demonstrations of the delight with which they hailed the submersion of the Atlantic cable and the articulate voice with which it spoke, the Americans expressed their feelings, in actions as well as words. The Mayor of New York ordered two pieces of artillery to be ready to fire a salute of one hundred guns on the arrival of the first dispatch from Trinity Bay. At Washington, "the feeling of delight amounted almost to transport." At Albany, the telegraph and other offices were illuminated, and "the people were wild with excitement." At Boston, the excitement was equally great. At Worcester, there was a salute of a hundred guns, and all the bells of the city rung. At Bangor, in Maine, the firing of guns and the bells of the churches announced the desired intelligence. The Alumni of the Theological College of Andover, where about a thousand persons were present, gave vent to their feelings in prayer and praise. At Rochester, the telegraph office was draped with American and British flags. At Utica and Syracuse, guns and bonfires and fireworks, celebrated the great event.

Our countrymen in the British provinces were not less enthusiastic than their brethren in the States. At St John's, New Brunswick, the general joy was expressed by the firing of guns and the display of fireworks, and the city was in a perfect blaze from the illumination of the public offices, warehouses, and private buildings. At Halifax, Quebec, Toronto, Chatham, Hamilton, and Montreal, the same excitement took place. The firing of guns, the display of flags, fireworks, illuminations, and processions, were everywhere the voluntary expressions of public feeling. That men in official positions, and the mercantile classes, should have celebrated the success of the Atlantic Telegraph, is hardly a matter of surprise; but we were not prepared to expect that the masses of the American population in our own Colonies, as well as in the States, should have displayed so much sympathy and exultation. It is a remarkable fact, of which we have seen no explanation, that the English people, the high and the low, the educated and the uneducated, have viewed this grand step in civilisation with the most callous indifference;

and that though the telegraphic wire begins in the mother country, and ends in its Colony, and is, in all its aspects and relations an English measure, yet no sound of joy has vibrated through the kingdom, and no expression of the nation's gratitude has been conveyed to the eminent individuals to whom we are indebted for bringing into action the greatest invention of the age. The English press has, with its usual power and eloquence, recorded the grateful sentiments of its leaders, but the Government and the nation have been dumb.

After several messages had been sent across the Atlantic, and recorded with all the facility and dispatch which had been anticipated, it was decided by the Directors of the Company, that the line should be kept free for several weeks, for the use of Mr Whitehouse, the electrician to the Company, and Professor Thomson, in order to enable them to test the most beneficial and rapid of the various modes of transmitting and recording messages, which had hitherto been in use; but they had hardly entered upon this task, when the Telegraph ceased to afford distinct signals. Messages transmitted from Newfoundland to Valentia were received, while none were returned from Valentia to Newfoundland. This untoward and unexpected event, while it has disappointed the high and reasonable expectations of the public, has called forth all the energies of the Directors of the Atlantic Telegraph Company. The officers of the Company have exerted themselves in discovering the nature and locality of the accident which must have occurred, and the most skilful electricians of the day have been summoned to assist in the inquiry. As the subject is one of great social, as well as scientific interest, no apology is necessary for treating it at some length.

On Sunday, the 1st of August, when 434 miles of cable had been payed out by the "Agamemnon," and 440 by the "Niagara," an electrical fault showed itself in the wire, which had received some injury from which it never completely recovered. During thirteen hours this fault, which appeared to be a break in the continuity of the wire, occasioned great trouble and anxiety; but, to the surprise of the electricians, the wire recovered its conducting powers to such a degree, that though it was very variable during the three or four days which preceded the landing of the cable, yet it was sufficient for ordinary use. From the 5th of August, when the cable was landed, to the 9th, the electrical condition of the wire was satisfactory; but up to that evening, nothing but *reversals*, the name given to alternate, positive, and negative currents, were received from Newfoundland. From the 9th to the 14th, various messages, respecting the adjustment of instruments, were sent and received through

the line; though it was evident that the signals were not so easily read in America as in Ireland. Hence it was believed that the defect in the cable was not more than 300 miles from Valentia. The conducting power of the wire became daily worse, till the 31st of August, when a Government message was dispatched to the North American Colonies. On the 1st of September, a second Government message was distinctly transmitted; but, after it had been acknowledged, it became impossible to convey any intelligible signals to America. The words "repeat," and "don't understand," were the only ones received from America; and, since half-past one o'clock on the 4th of September, no intelligible signal has been received at Valentia. Very distinct *reversals*, however, have been observed upon Professor Thomson's Reflecting Galvanometer, and sometimes so strong, that, had they been sending words, they might have been read by this sensitive instrument.

Ever since the cessation of the signals, Professor Thomson and Mr Bright have been constantly occupied in experiments to determine the particular point of the cable where the fault exists; and, though the Directors have the fullest confidence in the science and sagacity of the Professor, they have thought it their duty to take the advice of Mr Varley, electrician to the Electric and International Telegraph Company, and of Mr Henley, well-known as an electrical engineer. On Mr Varley's arrival at Valentia, on the 5th September, he found that, for many days, no words had been received through the cable from Newfoundland; and, after testing the condition of the cable in four different ways, from the 6th to the 10th, he obtained the following results:—

1. That there is a fault of great magnitude between 245 and 300 statute miles from Valentia, and assuming 270 as the mean, and allowing 22 per cent. for slack, he concludes that "it is possible that the chief defect is in shallow water (410 fathoms.)[1]

2. That the copper wire of the faulty place does not touch the iron covering of the cable.

3. That the insulation of the wire between Valentia and the fault, is perfect, or is not perceptibly defective.

4. That the copper wire is continuous, and consequently that the cable has not parted.

Upon examining the results obtained during the testing of the 1200 miles of cable on board the "Agamemnon," and upon learning that the currents through it immediately after it was submerged, were so weak that the ordinary relays were useless,—that not one perfect message was recorded by them, and that every

[1] Professor Thomson had previously arrived at the opinion that the fault was at a considerable distance from Valentia, and not in the harbour, as had been supposed.

signal had been read by the deflection of Professor Thomson's galvanometer, Mr Varley was led to conclude, that there was another fault, offering a resistance equal to 1000 or 1200 miles of cable, situated at a point about 500 miles from one end of the 1200 mile coil on board the "Agamemnon," and that this fault might have been the cause of the cessation of the signals when the ships were 500 miles from Ireland.

In seeking for the cause of both faults, Mr Varley thinks it probable, that the powerful currents from the large induction coils might have impaired the insulation when not perfect, by burning a hole in the gutta percha—an opinion which he confirmed by direct experiment, with an imperfectly insulated wire placed in water.

In Mr Henley's elaborate report, founded on experiments made between the 8th and the 30th September, he has arrived at the conclusion, that the principal fault is very nearly 300 miles from Valentia, and that the current meets a resistance[1] to its passage equal to that of 200 miles of the copper conducting wire of the cable. Although Mr Henley does not think it possible that the fault can be in the harbour, as had been supposed, yet he thinks it would be advisable to lay down the shore end of the cable at Valentia,—a step which had been delayed to avoid unnecessary expense,[2] as the present cable near the land must soon be injured by friction on the rocks and shingle.

Mr Henley concurs with Mr Varley in the opinion, that the fault or faults existed in the cable before it was laid down, and that they would have been discovered, and might have been repaired, had the whole cable been tested in water during its manufacture. The defect was not visible at first, because it takes some time for the water to soak through the pitch and tar.

It was supposed that the cable had been injured after submersion, by resting on the sharp edge of a rock; but Mr Henley does not think that this has been the case, as the inner wire and the outward metallic covering must have come in contact; and if this had taken place, the slightest signal could not have been observed. Signals, however, have always been transmitted; but, from the first, they were so weak, that they were scarcely sufficient to work a very delicate relay, which can be used with a current scarcely detected by the tongue. The currents now received are not more than a tenth of this power, and can only be indicated on Professor Thomson's ingenious and very sensitive reflecting galvanometer—an apparatus which could be made

[1] By resistance is meant the impeding force that electricity meets with in its passage through conductors of all kinds—a force which can be accurately measured, even in an inch of wire.

[2] The directors had anticipated Mr Henley in this opinion, and a vessel was dispatched in the beginning of October to effect this object.

more delicate still, so as to work with the smallest current, were it not that the *earth currents* would interfere with the results. Were these currents constant in quantity or direction, it would be quite easy to neutralise their effects, but they are so variable in their movements, that they often change from positive to negative so rapidly and regularly, that it is difficult to discover whether the signals come from Newfoundland or from the earth current.

It has been long known, that if an electrical current moves in a line near to, and parallel with a conducting wire, or any other insulated conductor, a current is induced in the wire or conductor in a contrary direction, its strength being proportional to that of the natural current, and to their degree of parallelism. In wires parallel to the equator, every change in the earth's magnetism disturbs their electrical state. In overground telegraphic wires, the communication is sometimes completely stopped by strong earth currents. When the lines are about 100 miles long, they show themselves only at intervals; but, in a line so long as the Atlantic Telegraph, electric disturbance will take place at all times; and, if they exist in one place, they will extend along the whole line. Had the present cable been more perfectly insulated, the working currents would have overpowered the earth current.

In reference to the injury produced by currents of great quantity and intensity, Mr Henley is of opinion, that if there is a small hole in the gutta-percha envelope, near either end of the cable, the hole would, to a limited extent, be enlarged by burning, the heat diminishing with the enlargement of the hole.

With his large magnetic machine, which Mr Henley attached to the cable on the 20th September, he sent every day sometimes reversals, and at other times words and sentences; but, we regret to learn, by accounts from Newfoundland, dated September 25th, that only weak reversals had been received there during the three preceding days. This disagreeable intelligence does not justify the expectation expressed by Mr Henley at the close of his Report, that if the state of the cable should not get worse, it might be rendered workable by transmitting signals slowly, by receiving them on delicate instruments, and by neutralising the earth current.[1] The rate of working, however, would be very slow, as Mr Henley has asserted that four words per minute would be the maximum rate of transmission through any Atlantic cable with the dot and dash system of Professor Morse.[2]

[1] Professor Thomson, as we shall presently see, has succeeded in neutralising these currents, by throwing into the receiving end of the line, feeble currents of different values, from 1 cell to 1-20th of a cell, in opposition to the intruding current.

[2] Mr Henley adds, that the rate would be increased in proportion if other plans for recording the message could be worked, by which a letter could be indicated by one or two signals.

We are glad to be able to confirm the principal results in the Reports of Mr Varley and Mr Henley, by the observations of Professor Thomson, who has performed such a distinguished part, not only in the testing and signalling which was required during the submerging of the cable, but in the various operations for discovering the locality of the fault which impaired its action, and in the invention of ingenious and delicate instruments for receiving and rendering serviceable the faintest signals. Although Professor Thomson is of opinion that it is not absolutely impossible that messages may still be transmitted through the cable, from the fact that slight indications of signals, due probably to currents from the other end, are given at Valentia, yet he thinks there is very little ground for hope that any real telegraphic work can be done through the cable without lifting it as far as the fault, and replacing or mending the defective part. He believes that the wire has lost its insulation at a point 300 miles distant from the Valentia end of it. This distance could be determined to a mile, if the quality of the wire as to its conductivity, were uniform, or had been ascertained for every part between Valentia and the fault. The mode of determining it, is to find what length of fine wire, of definite gauge and conductivity, conducts the same strength of current between the two poles of a battery, as the same battery sends from one of its poles into the cable when its other pole is connected with the earth by a large metal plate, or by the iron sheath of the cable itself. A comparatively slight defect of insulation at a short distance, Professor Thomson thinks, might, in a single hasty test, give the same indications as a greater fault at a greater distance; but, the pathology of cables affords a diagnosis by which the two cases can be distinguished with certainty; and a very bad fault at a distance, which can be but a very few miles short of the length of cable equivalent in resistance to the testing wire, is too surely established in the present case.

In science, as in everything else, the advantage of a vexatious and unexpected failure, is, that it calls forth new powers of invention and research. In the case of the Atlantic cable, all the electrical and mechanical knowledge of the day has been summoned to the rescue; and, we have no doubt, that the methods employed in telegraphing across the Atlantic will, in a short time, be more perfect—that is, more sure and rapid—than if the first cable had performed its anticipated functions. Among the instruments and methods which have been employed in rendering visible the faint signals that trembled along the wire, those of Professor Thomson, for which he has obtained patents, are the most ingenious and valuable. During the brief period of successful operations, his instruments were used exclusively in the

actual telegraphic work at the Valentia station. Letters and words, indeed, were occasionally taken correctly by Mr Whitehouse's recording relay; but from, and including the very first night (Monday, the 9th of August), when letters and words began to come, it was found that neither the relay nor any of the other ordinary instruments, could be got to give reliable results; and Professor Thomson's Reflection Galvanometer was put in requisition, as the only receiving instrument available for the work. Every message that arrived was received and read by means of it. Sometimes some of the other instruments were also in circuit; and the comparison of results was so decisive, that the Reflection Galvanometer alone was trusted to for actual business. The induction coils which had been prepared for the transmission of messages from Valentia proved insufficient, and Professor Thomson's battery was substituted by Mr Whitehouse, and gave all the messages to Newfoundland that have been read.

The telegraphic apparatus patented by Professor Thomson was designed to carry into practical application certain conclusions from the theory of induction in submarine telegraphs, to which he had been led by mathematical investigation, and includes instruments for "reading" as well as instruments for "receiving" messages. The former are adapted to apply definite degrees of electro-motive force during definite times to a telegraphic conductor, and the latter to measure and record the strength of the current passing at any time through either end.

The great capacity of a long submarine line for electric charge, giving rise to embarrassment and confusion of signals, renders the action in actual telegraphing generally slower than in an equal length of equally well insulated air-line. It is to obviate the difficulties arising from this source, and to obtain a higher speed of working, that Professor Thomson's apparatus was first designed; but some of his instruments may be used with advantage in every kind of telegraph.

The chief peculiarity in the part of the apparatus used for the "reading" of messages, lies in its adaptation to apply definite degrees of electro-motive force during definite times to a telegraphic wire, according to the deductions from theory, fully confirmed by his trials on the Atlantic cable, as to the best way of producing rapid and distinct signals.

The battery employed by Professor Thomson is a new form of Daniell's, which he found very advantageous for telegraphic purposes. It consists either of flat copper trays, or flat vessels of any suitable material, with copper plates laid inside of them on their bottoms, and each filled with saw dust, on the top of which a plate of amalgamated zinc is laid. Crystals of sulphate

of copper are placed in the bottom of each cell, and the saw dust is moistened with a mixture of sulphuric acid and water. The saw dust performs most efficiently the part of a porous cell, in separating the two solutions of a Daniell's battery, and gives to it also the convenience of the common sand battery, or of the Valentia saw dust battery.[1] This form of the battery, whether it is employed for land telegraphic work or for marine testing, Professor Thomson thinks will be superior to every other battery hitherto used. It has been found of admirable constancy in the trials already made with it. The whole telegraphic work, indeed, at the Valentia station was done by it; and having been forced to attend very closely to its action in the various delicate measurements he had to make in connection with the operations for testing the cable, Professor Thomson had every reason to be satisfied with its performance.

In the ordinary telegraphic instruments for receiving messages, the signals are obtained from the impacts of a needle on stops between which it is confined: but the new receiving apparatus, invented and used by Professor Thomson, has the peculiarity of giving indications from a freely suspended magnet, as in a galvanometer. The instrument which he has hitherto chiefly used is in reality a galvanometer of a very peculiar construction, which cannot fail to be of great use in many varieties of experiment in scientific researches. It consists of a bobbin of fine silk-covered wire, with a hollow cone about half-an-inch in diameter, in which is placed a small silver cell, containing, suspended by a silk fibre, a small mirror of the thinnest glass,[2] to the back of which is attached horizontally a magnet like a piece of ordinary sewing needle, but ground from a rat-tail file, which he found to be the best steel for retaining magnetism. The diameter of the largest mirrors which he used is about the fourth part of an inch; but he has used some much smaller. The silver cell, containing the mirror and suspended magnet, is closed at one end by a convex lens of glass from *three* to *four* feet in focal length. The fibre which suspends the needle, being only about one-tenth of an inch long, exercises a very sensible influence on the motions of the needle, by its resistance to torsion, but not to such a degree as to occasion any inconvenience. The small dimensions of the instrument render it excessively sensitive,—so much so, indeed, that it retains ample sensibility for all purposes to which Professor Thomson has hitherto applied it, when influenced by

[1] The sand at Valentia having been found unavailable, from its containing a large quantity of calcareous matter, Professor Thomson substituted, last year, saw dust, with great advantage.

[2] Professor Thomson has hitherto used "microscope glass," but he intends to have some equally light mirrors made of glass, ground more truly plane.

a directing force amounting to many times that of the earth's magnetism, in virtue of a steel magnet or magnets attached, in suitable positions, to the stand of the instrument. In order to reduce the sensibility of the indications to the requisite degree, Professor Thomson uses one or more "adjustment magnets," and he has found great advantage in the stability and rapidity of action thus given to the needle. A Paraffine, or other suitable lamp, is placed in front of the instrument, a little above the axis of the mirror, when in its middle position. A horizontal scale is fixed below the level of the flame of the lamp, the centre of the scale being placed a little below, and in front of the principal focus of the lens, and the lamp at an equal distance above and behind. A screen is so placed that an observer, looking from below, may conveniently see the image of the lamp on the scale, which has enough of diffused light upon it to admit of the divisions being easily read.

The "Marine Galvanometer," invented and employed by Professor Thomson, is constructed upon the same principle as his "Receiving Apparatus," but necessarily differs from it in the mode of suspending the needle. The first instruments of this kind were used on board the "Agamemnon" and "Niagara," for testing and signalling during the whole process of laying the cable. In these instruments the mirror, with a pair of parallel magnets attached to it, was supported by a fine platinum wire cemented to its back, and stretched between two torsion heads above and below the Galvanometer coil, which consists of two parts separated to allow the wires to pass freely between them. The stability given by this mode of suspension was highly satisfactory during the roughest weather, and the sensibility of the indications, with only 500 yards of wire in the coil, was suited for the accurate measurement of the current, whether received from the other end of the cable, or produced by a battery at the end to which it is applied. In order to obviate the effects of tremulous motion, whether occasioned by the action of the screw, the impacts of waves, or other causes, the frame bearing the instrument, the scale and the lamp, all rigidly connected, was supported on furniture springs, and moved horizontally by spiral brass springs, all attached to a fixed stand screwed to the deck. The springs will, probably, be found unnecessary when a little trouble is taken to ensure the line of the platinum wire, or supporting thread, passing somewhat nearly through the centre of gravity of the mirror and magnets.

In addition to these pieces of apparatus, Professor Thomson has invented a Telegraphic Receiving Instrument, in which the motions of a needle suspended, either freely by a silk fibre, or by a stretched wire or thread, as in the Marine Galvanometer,

are recorded by means of electric sparks from the end of a light index carried by the needle, and made part of the circuit of the secondary wire of a Ruhinkorff's coil. This instrument, which may be used with advantage for recording "Morse Signals," will be available when an ordinary relay would be thrown out of adjustment, either by earth currents or by the submarine inductive action. Hitherto, however, the only receiving instruments which Professor Thomson has used in actual telegraphic work, are the Marine and Land Reflection Galvanometers. The latter has been used from the beginning at the Valentia station for reading the Morse signals—that is, deflections of two different durations, a short and a long, which, when recorded by means of a relay, give "dots" and "dashes" on the ribbon paper, whether by indentation, as in the "Morse Instrument," or by ink marks, or galvanic decomposition, as in other telegraphic printing instruments. In reading such signals by the Reflection Galvanometer, the observer watches the spot of light—the image of the lamp formed in the conjugate focus of the convex lens, which is formed on the scale, and presses a key every time he sees it move suddenly to the right, letting the key rise again when he sees the luminous image return towards the left. This key, when depressed, makes contact for a local printing battery, just as a relay does; or, what is much better, it acts mechanically on a pencil or style, guided by a spring, and makes a mark on paper carried by wheelwork.

In the unfortunate condition of the Atlantic cable, no other system could be got to work at all, except occasionally; but, even with a perfectly insulated line of 2000 or more miles of submarine wire, there can be no doubt that either the Reflection Galvanometer, or the Electric Spark Recorder, will give a much quicker rate of Morse signalling than can be attained by any ordinary relay, the needle of which gets thrown against its stops by the long, slow, electric tides of charge and discharge lasting several seconds, and thus loses the effects of the shorter waves by which varieties of signals are produced.

Whether the Morse, or some analogous system of signalling, when worked at the rate attainable by the use of Professor Thomson's instruments—which, in the recent work, through the submerged and failing Atlantic cable, has been double of that which has been reached with the ordinary receiving instruments, after a year's trial through the same conductor in a state of perfect insulation, with its two ends in the same experimental room,—whether such a system may prove ultimately to be the best, or whether such systems are to be superseded by the system of different degrees and directions of current for different letters, which Professor Thomson has found capable of very rapid and

sure action in his experiments at Keyham, must be determined by further investigations, theoretical, if not experimental.

The effect of earth currents in the submerged cable—that is to say, of currents through the insulated conductor, due to differences in the earth's magnetism at the points where the conductor is in connection with the earth—has been found by Professor Thomson to have been very striking. They have, as was to be expected, become more and more prominent, as the fault in the wire became worse. At present (September 28) they amount ordinarily to twenty or thirty times (as indicated by Professor Thomson's instruments) what he should have considered as amply sufficient signals a month ago, when telegraphic operations were still practicable. In order to compensate the effect of these currents on the receiving instrument, the Professor has introduced, in the Earth Electrode of the Galvanometer, a very simple piece of apparatus, by which the observer has merely to move a slide to one position or another on a frame below the scale, in order to apply whatever degree of electro-motive force is required to bring the spot of light to any convenient position on the scale. Even when earth currents vary so as, if uncompensated, to carry the image out of sight, the observer may, with a little care, bring it back, and keep it constantly in range during the receipt of a message, without losing a signal. The times when these disturbances are so violent as not to be thus manageable, are certainly not frequent; and the experience which Professor Thomson has now had, along with theoretical considerations not open to doubt, allows him to state with confidence, that work through an Atlantic cable, in tolerably good condition, will be very rarely stopped by earth currents.

Such is a brief account of the origin and progress of submarine telegraphs,—of the submerging of the great Atlantic cable,—of the accidents which have befallen it,—of the methods which have revealed its locality, and of the instruments by which it spoke articulately beneath 2000 miles of ocean, and by which even its tremulous and dying accents have been interpreted. It is impossible to read such exciting and instructive details, without admiring the enterprise of its promoters—the courage and patience of the officers and engineers who succeeded in submerging it—and of the electricians, who have shown such marvellous skill in discovering the locality of its wounds, and in deciphering its ambiguous and fluttering signals.

In chronicling the history of an undertaking in which so much practical skill and theoretical knowledge have been displayed, it would be ungenerous to underrate by invidious comparison the services of individuals when each has done his duty, and when

success has crowned their united labours. But, we are sure, that we excite no painful feelings, when we mention the pre-eminent services of our distinguished countryman Professor William Thomson of Glasgow, who not only laboured at the testing and signalling operations on board the "Agamemnon," during both its voyages; but who, by his mathematical and physical acquirements, has provided the scientific world with instruments of observation and research, to carry the messages of commerce and civilisation which will yet cross the uncabled oceans that separate the families of the earth.

Our readers will already have observed that we are not among the number of those who have any doubt of the final success of the Atlantic Telegraph. We cannot but hold in derision the attempts which have been made to prejudice the public mind against this magnificent enterprise. When a bridge or a viaduct falls, who ever doubted that it will reappear on a firmer base, and with a nobler elevation. If the Atlantic wire has lost its insulation, who can doubt that its virtue will be restored, or that it will be replaced by another more perfectly insulated. If the cable has been grazed by the rude friction of its bed, or has snapped on the sharp edge of a submarine rock, its surface wound may heal or be healed, its separated parts may be united, or a new and a stronger cable may be submerged. If the earth currents occasionally confound or overpower its speech, science has ample enough resources to extricate the genuine signal, and to reduce to subordination these pirates of the deep.

In such operations, doubtless, the means of its promoters may be exhausted, and a large expenditure required; but, if an enterprise so cosmical in its character, and one in which Great Britain and the United States have so deep an interest, should require it, can it be doubted that they will jointly advance the funds necessary to its completion? The appreciation of an Atlantic Telegraph so nobly exhibited by the people of the States during the first phase of its success, leads us to believe, that the Republican spirit would deal generously with such a proposal, even though the cable has its origin and termination on a soil not their own. The apathy of our countrymen on the same occasion, and the parsimony of our Government so frequently and painfully displayed when science or art, or any branch of the civil service calls for their liberality, discourages the hope that they will thus aid a great public work, though it rests on British ground, and must powerfully contribute to British interests.[1]

[1] The joint possession of the Atlantic Telegraph by Great Britain and the United States, would remove the apprehension so sensitively felt in America, and so pointedly referred to by the President in his message to the Queen, that the telegraph might be employed by England as a military engine, and for hostile purposes.

But should the two Governments refuse to form so noble a co-partnery, we are confident that every individual of the Anglo-Saxon race, on both sides of the Atlantic, and even the inhabitants of those civilised countries that would benefit by the telegraphic union of the Old and New World, would contribute their share to the millions of money that might be required to effect it.

Among the many advantages of a rapid communication between the eastern and western hemispheres, anticipated by its promoters, that of preventing hostilities between Great Britain and America, has been the most deeply cherished. Lieutenant Maury was convinced, that "no high-minded people would ever dream of employing, as a military engine, a cable consecrated to the service of commerce, the advancement of science, and the benefit and improvement of the whole human family;" and Professor Morse, in repeating the same sentiment, expressed his belief, that "when New York became a suburb of London, and Washington the western half of Westminster, an American war would be impossible;" and that "an increase in the facilities for the interchange of ideas, for the opening out of commercial relations, and for the development of intelligence, must diminish the necessity of appeals from reason to force." The warlike press of England, so long accustomed to deride the pacific aspirations of her philanthropists, has not hesitated to reciprocate these noble sentiments, and to express their "full belief that the effect of bringing the Three Kingdoms and the United States into instantaneous communication with each other, will be to render hostilities between the two nations almost impossible for the future."[1] We regret that we cannot discover in the submarine cable so magical a virtue. We may expect, indeed, that in the increase of our commercial relations with America, and in the identity of interests which must arise between nations that boast of the same freedom and speak the same tongue, the feelings of the past may be forgotten, and more friendly relations gradually formed; but, while the human tiger retains his ferocity, and clings to the idea that the shedding of innocent Christian blood is compatible with his faith, we cannot indulge the hope that even an instantaneous communication with our Anglo-Saxon brethren will extinguish national feelings, and reconcile conflicting interests. But, while we are unable to cherish the pious expectations of the philanthropist, we have no doubt that the two great Anglo-Saxon nations will one day be united, and that in this union the nations of the earth will have the best security for their liberties, and the surest guarantee of universal peace.

[1] *Times*, August 1858.

Art. XI.—Recent Publications.

History of Civilization in England. By H. T. Buckle. Vol. I. 2d Edit. Parker and Son. 1858.

We had seriously intended to devote a lengthened article to this work when it first appeared; but, on carefully reading it, the volume did not seem worthy of such notice. The subject is a noble one; and, were we to judge of the excellence of the treatment by the list of authors professedly consulted by Mr Buckle, we should have a high idea of the execution. This list stands in lieu of preface, and extends to fourteen pages. Mr Buckle has evidently, to use his own expression about himself, looked through the leaves of a good many volumes; and his long list may go for much with those (a large class) who are not thorough students. He is obviously no critic; for, when he attempts to give his opinion upon the literary merits of books, it is by the use of such vague terms as "splendid." He has plainly not availed himself of the most recent sources of information; thus, what he says about Brazil (p. 96), is quite at variance with the elaborate account of that country lately given by Pereira de Silva, a member of the Brazilian Chamber, in the *Revue des Deux Mondes*. Again, Dr Barth has refuted what he says about Central Africa. He is not more accurate about matters of art. Thus, "nearly all the great sculptors come from Spain and Italy." Excepting Canova, what Italian sculptor of the last hundred years can be compared with Chantrey, Danneker, and Thorwaldsen; and what Spaniard, during that time, has obtained a trans-Spanish reputation?

Mr Buckle gives himself out as a person who has paid much attention to French subjects. But, judging by the chapter which he has devoted to the period 1550–1661 (chap. viii., pp. 460–557), we suspect his knowledge is of the read-up-character. About French Protestantism, two of his chief authorities are Smedley's History, a publication got up for a popular library; and the work of Capefigue, an author who has been shewn to be thoroughly partisan and superficial. Mr Buckle has allowed himself to speak of the Calvinist ministers in terms which only the lower order of Popish controversialists would employ. Thus, they are "these insignificant priests"—"only fit to mount the pulpit of a country village." (Has Mr Buckle seen any *town villages* in his travels?) This is the way he writes of such men as Daille, Claude, and Dumoulin (whom he calls Moulin, obviously never having seen *the title-page* of his works). He studiously keeps out of view that the Synods of the Protestants were composed of elders as well as ministers, in order to sneer at "ecclesiastics." Again, he keeps from the knowledge of his reader the local persecutions of the Parliaments of Bordeaux, Grenoble, and others, in order to give credit to his baseless hypothesis, that there was no persecution before Louis XIV. took the government into his own hand. He further suppresses the extinction of Protestantism as the established religion in Bearn by Louis XIII. in 1617; that imbecile prince thus reversing what his pious grandmother, Jane d'Albret had accomplished in 1568. The preventing the circulation of Protestant books throughout France,

by a royal ediet, and many other equally intolerant acts of the central authority during the reign of Louis XIII., and the minority of Louis XIV., are ignored by Mr Buckle. The reader will find them fully enumerated by M. Drion in his "Chronological History" (Paris 1855).

Coming further down in French history, Mr Buckle favours us with his opinion that Massillon (p. 783) was the last eminent man of the Gallican Church before the Revolution. Of Bridaine whom Massillon declared his superior in pulpit oratory, Mr Buckle appears never to have heard. Yet so common a book as Bungener's "Priest and Huguenot," might have informed him. The learned labours of the Benedictines of St Maur were only stopped by the Revolution; but, of the great contributions which they have made to the early and mediæval history of France, this gentleman is pleased to say nothing. Guizot and the two brothers Thierry, have spoken, however, and their testimony is of far greater value than Mr Buckle's ignorance or ignoring. About the sceptical writers of France, Mr Buckle ought to be better informed, for their views would largely harmonize with his own. But what authority (he quotes none) has he for saying that Charron's treatise on Wisdom "possessed in the seventeenth century a reputation of the highest order" (p. 475). Mr Hallam merely says, "it had a considerable reputation." But Mr Hallam weighs his words, and Mr Buckle merely writes them.

Has this gentleman a peculiar grudge against Presbyterianism? It would seem so: we have seen his review of the Huguenots, and Scotland loses favour in his eyes. The Scottish people "are more superstitious than the French." So La Salette has been far outdone, we presume, by some got-up miracles on the north of the Tweed! He tells us that Francis Hutcheson (p. 227), was *an Irishman* by birth; and a sentence or two further on, his method was adopted by another and greater *Scotchman!* "Adam Smith!" In Mr Buckle's enumeration of eminent philosophical Scotchmen (pp. 227–230), Campbell, Reid, and Chalmers, are all left out of view; they were "ecclesiastics," and it did not suit Mr Buckle's sceptical prejudices to mention them! "Whoever will look into Scotch theology" (the whole book is only a series of "lookings into," hence its *sciolism*), and read the proceedings of the Scotch Assemblies and Consistories (!) ("at how many meetings of *kirk-session*, Mr Buckle, are there newspaper reporters; but, probably, you do not know what *consistory* means) "will see how little the country has benefited by its religion" (p. 243). His great authority on Scotch history is Barry's Orkney Islands!

Mr Buckle professes to be a sceptic, yet a believer in Christianity. But as Christianity means with him nothing more than a belief of a Deity, and some sort of existence after death, it would be more becoming in him to call himself a Deist. Nobody can be imposed upon by such a profession of Christianity as he makes. To him Gibbon's 15th and 16th chapters stand unrefuted. That Guizot and Mackintosh were of an opposite opinion he takes care to conceal, as he does, that Lord Hailes wrote against Gibbon. Priestley's History of the Corruptions of Christianity, is his great authority for the statement, that there is much Paganism

still among "all Christian sects." Of Horseley's answer to Priestley, which Robert Hall declared had *slain* the Socinian pamphleteer, Mr Buckle appears never to have heard. He reads sceptical and heretical books, and is too self-complacent to read those on the other side.

This author is ludicrously fond of parading references about matters which nobody would call in question. If he had to relate the resignation of Lord Palmerston in February last, he would say, "See the *Spectator* and *Examiner* of that week; also, compare the *John Bull*, the *Leader*, the *Press*, and *Lloyd's Weekly Newspaper!*" But, upon matters of more consequence, where his word will not go for everything, it is thus he frequently expresses himself, "It cannot be denied, it will not be questioned," etc.; as if, though scepticism was a very good thing in general, it were out of the question where—Mr Buckle had made up his mind!

Mr Buckle speaks with great contempt of British theologians in general. But, it is the contempt of ignorance. He classes Owen among the Latitudinarian divines; and says that Cave was one of the writers who sought to destroy the reputation of the Fathers! Theodore Parker (!) is his authority for the assertion, that there are no distinguished theologians in modern times in England. The eighteenth century is "that great age;" Voltaire is, on the whole, the greatest of historians; and the Fronde, which has left France nothing but the word *frondeur*, is, in his opinion, on a level with our Civil War. Rousseau is a more competent judge of philosophy than Dugald Stewart. The Jesuits "were the great missionaries of knowledge in the sixteenth century." Mahomet is "the greatest man Asia ever produced." (One Paul of Tarsus, of course, is not to be named with the great Arabian!) "The Jews were a plundering and a vagabond tribe." He speaks of Puseyism (p. 325) as the only active form of religion in this island. That evangelism—Established or Non-conformist, Scotch or English—is energetic in preaching, literature, and life, seems quite below this gentleman's notice. He never adverts to the works of Buckland or Hugh Miller, in writing upon the alleged contradiction of Genesis by Geology. This book has nothing great about it, but its size. Its style is very diffuse, and it is full of repetitions. It is a most *cliquish* book; the production of a man who seems to have lived among a set of sceptical companions, until he has got to imagine that all the wisdom and all the wit of Britain are concentrated among them. No real student will ever have a high opinion of the work. Mr Buckle is not a profound thinker; he is a slovenly and egotistical writer. We have never read a book which brought more forcibly before us, through its absurd pretensions to all sorts of knowledge, that phrase, "Jack of all trades and master of none." One service, however, Mr Buckle has rendered. He has, in his book, presented to the future historian of English civilization, a specimen of all that his work ought not to be. "Comme il ne faut pas precher," is the title of a work for French ecclesiastics. "Comme il ne faut pas ecrire," is the best maxim we can extract from Mr Buckle's ponderous volume!

Zwingli: or, the Rise of the Reformation in Switzerland. A Life of the Reformer, with some Notices of his Time and Contemporaries. By R. CHRISTOFFEL, Pastor of the Reformed Church, Wintersingen, Switzerland. Translated from the German by JOHN COCHRAN, Esq. Edinburgh: T. and T. Clark. 1858.

OUR *beau ideal* as to the execution of a monograph like the above named may be thus expressed. Let the writer, planting himself as close as possible to the subject of his study, watch his mental development and moral progress, take note of his weakness and strength, his faults and virtues, mark the influence exerted upon his character by other men, and the impression which he receives from passing events, estimate the nature and the amount of the impulse which he communicates to his age,—and thus, from his peculiar viewpoint, having surveyed his hero in the totality of his being, he is in a condition to set the man before us in a portraiture so vivid and life-like, that we at once recognise his individuality, and discover the secret of his power. Great men are influential in directing the course of events in their own age, and outward circumstances re-act upon them. Thus the historical biography, exhibiting the central figure of the narrative in his inner development and outer life, grouping around him the men and the events of his time according to their relative importance, is in some respects better fitted than general history, to give us an insight into the real character of the period to which it refers. Of this class of works there are already good specimens, both British and foreign. The volume before us is another. We cannot say that our ideal is fully realised; but a hearty sympathy with Zwingli's views, a discriminating acquaintance with his writings, and a correct appreciation of the tendencies of the period in question, have enabled the author to produce a very valuable contribution to historical literature. After the "Vie d'Ulrich Zwingli" of M. J. G. Hess, lively and interesting as it is, this work of M. Christoffel, with its masterly handling of details, and its graphic portraiture, seems to lift us into a new world of life and action.

The structure of the book is well-fitted to accomplish the object in view. The division is not purely chronological, but substantially so. The life and labours of Zwingli are exhibited under successive aspects, which mode of treatment calls for retrospect, and occasionally involves anticipation. Under nine sections, the author brings before us Zwingli's boyhood and school time; his priest life at Glarus and Einsiedeln; his spiritual birth and early labours in the dissemination of the truth; his first four years at Zurich, both as patriot and as pastor; his influence on surrounding states; his apostolic "care of all the churches" which were beginning to spring up under the reviving power of a pure Gospel; the reactionary measures of the Papal party; the unhappy differences on the subject of the sacrament; his private life; his last labours; and the progress of that miserable intercantonal strife, which issued in the violent removal from the stage of one of the most heroic men that ever lived.

The subject is a very tempting one, and it would be a congenial task to travel with the author along the course he has so well delineated. We shall only, however, indicate a few thoughts which have occurred during the perusal of this work. And first, our estimate of Zwingli, high as that was, has been heightened. He was gifted with rare quickness of perception; and exemplified that intuitional discovery of truth, by which some minds seem to comprehend at once, and take possession with a single effort of that which others reach only after the expenditure of continuous labour. His breadth of view and mental grasp, are abundantly attested by the extracts from his writings which this volume contains, even if we did not otherwise know of them. His ripeness of judgment fitted him for being the counsellor of oppressed Protestants and young Christian communities, in every part of Christendom. In point of undaunted courage and noble constancy in the hour of trial, he is second to none. In 1523 he was offered "all but the Papal chair," if he would only act in the interest of Rome; but "the poverty of Christ," to use his own words, "was dearer to him than the worldly pomp of the Papists." And he was no narrow-minded bigot, but one of the most large-hearted of men. It seems to be supposed, in some quarters, that love is most likely to exist in connection with haziness of theological views. With the clearest views of Scripture, and a well-defined system of doctrinal truth, Zwingli combined the most loving regard to all who were in the faith.

One outstanding feature of this great man, indicating in fact his position as a Reformer, is his profound reverence for the Word of God. He regarded it as the alone standard of truth and duty: he would apply its principles in all departments of private and social life; in all disputations, its decisions must be final. On the question as to the right method of discovering the true sense of Scripture, nothing can be finer or more masterly, as an exhibition of principles, than the passage (239–41) which M. Christoffel adduces from his works, for the purpose of showing the views which he took in the sacramentarian dispute. This suggests the subject of his relation to, and intercourse with, Luther. Born within a few weeks of each other, but variously endowed with mental gifts, brought up under different circumstances, and far apart, they turned out men of a very different stamp. The grace of God reached them both and about the same time; but for his knowledge of the truth each was entirely independent of the other. Very early Zwingli proclaims this. "Before a single individual in our part of the country ever heard of the name of Luther, I began to preach the Gospel; this was in the year 1516." The truth is, that these men were two great instruments for accomplishing the emancipation of the several communities of which they were citizens; and the variety of mental character by which they were severally distinguished, was manifested in the direction which the movement assumed in their hands. It is ably shown in this book, that the different modes of conceiving and expressing the presence of the Lord in the Supper, of which Luther and Zwingli

were respectively the exponents, arise in great measure from the diverse intellectual character of the two Reformers.

A few words as to the influence which Zwingli exerted in the advancement of the Reformation. He fully comprehended the importance of the position which he had in providence been called to occupy. A Christian patriot of the highest type, he felt that he had a great work to do in Switzerland, and he yearned after the uplifting to religious and social and political freedom, of all the Confederated States; but "his glances extended beyond the limits of his native country, and his heart beat high for the weal of the whole Christian Church." After he was planted in Zurich, and had begun to feel his way, he directed his whole energies towards the pervasion of the community, in its various social grades, with the leaven of the Gospel. Amid the disorders of a transition state, it was unavoidable that the pastor should, to some extent, be merged in the citizen, and that the civil authority should have something to do with the ordering of religious worship. If the ecclesiastical authority could not "lend its aid to the grand object of bringing Christian doctrine before the people in an unadulterated form, and would not give a helping-hand to the truth, it rested on the civil power to do it." And, on the other hand, if a man of Zwingli's capacity was needed as a state councillor, he could not be silent. We think that Merle D'Aubigne has done him scant justice in his great work, reprobating his interference in state affairs, and his appearance in the field, and going so far as to represent his death in battle as retributive. "They that take the sword shall perish with the sword." While the community of Zurich or Berne at the time in question, or that of Scotland at a later period, was emerging from spiritual darkness, and all the elements of social life were in commotion, and political matters were only in course of adjustment, the preachers of the Word were hardly out of their place in giving counsel to statesmen, nay, in even assuming a prominent position as advisers, at least until the cause of truth was safe, and the authority of the Word was recognised in the guidance of public affairs. This is our defence of the Zwinglis and Calvins and Knoxes of the Reformation.

This goodly volume deserves to be studied, and will long keep its place as the best life of the great Swiss Reformer. The translation is excellent.

A Historical and Critical Commentary on the Old Testament, with a New Translation. By M. M Kalisch, Ph.D., M.A.—Genesis. Lond.: Longmans, 1858. 8vo, pp. 868.

The author of this bulky volume is a Jew. We state this, certainly not in any invidious sense, or with the view of raising a prejudice against the work, but in order to apprise the reader of a fact of some consequence in forming an estimate of this commentary, and which, without some such premonition, he would not readily detect from its perusal. And yet it might be supposed that a fact such as this would have given so distinctive a character to any Biblical exposition, that

the author's religious standing would be at once apparent. The contrary, however, is the case in the present instance. There is, of course, no intentional reserve. The deference shown to the New Testament Scriptures, with the allusion to the Founder of Christianity (p. 588), is, we believe, entirely honest; but this, taken in connection with other circumstances to be noticed, only renders, in our apprehension, the author's position more anomalous. He no doubt finds errors, both historical and doctrinal, in the New Testament; but this is no more than he admits with respect to the Old, the authority of the earlier portion of which at least, as we shall presently show, he does not rate very high. In fact, Dr Kalisch's relation, as we conceive, to the Synagogue, would seem to be as equivocal as his standing to the Church. We are judging solely from this and the author's previous work on Exodus; but the conviction forced upon us from the perusal of the more recent work in particular is, that our author shows that he has less faith in Moses than in Jesus Christ.

Dr Kalisch intimates, in his Preface, that his "conclusions have been stated with unreserved frankness." In this view we in a great measure concur; although with regard to some particulars, as the author of Genesis, and its age, we are left in considerable doubt. But perhaps these points are reserved for a later portion of the work, "in which," as the author promises, "many questions regarding Genesis, here not yet admitting of a final decision, will be more fully examined" (p. iv.). Meantime, and in the absence of explicit statements, we must try as best we may to discover something regarding the age and origin of this document. Without adverting to our author's distinction of Elohist and Jehovist, so fashionable in modern Biblical criticism, we gather from various expressions that Genesis, and indeed the whole Pentateuch, originated long after Moses (see particularly p. 742), and in fact by a system of *development*, to the agency of which modern theorists ascribe so many mental and material wonders; so that the expressions, "*Mosaic* narrative" (p. 172), and "the books of *Moses*" (p. 82), must be used by Dr K. only in the way of *accommodation* to our prejudices. But with far more certainty do we discover the amount of authority attributed to the compositions, and the character of the unknown author or authors. Sometimes there is "a *heathen* element retained in the narrative" (p. 172); sometimes it is disfigured by contradictions arising from the "uncertain sources of tradition" (p. 689), and from "the inaccuracies of the tradition" (p. 687) which the author followed, and who himself exhibits "unconcern" or "forgetfulness." Thus, the "author," not of the Commentary but of Genesis, "believing the immigration of *seventy* Israelites into Egypt to be a historical fact, made up that number by mentioning, in addition to the individuals introduced in the narration, the founders of the Hebrew families existing in his time, *unconcerned* or *forgetting* that thus, including the wives and daughters alluded to by him, but perhaps no more known by name, the amount became considerably higher than seventy" (p. 689). In another instance, the same author, "neglecting the characteristic spirit of Biblical history," and by indulging in some favourite theory, showed himself to be "unmindful of the charges to which he exposed Joseph's conduct" (p. 704).

Dr Kalisch, however, undertakes, by his principles of interpretation, to correct all these errors and misstatements, his fundamental canon being, to separate "the *form* of the narratives from the *ideas* which they embody." In this way he believes "many difficulties may find a solution, doing equal justice to universal history, and to the *development* of the Hebrew mind" (p. iv.). That our readers may judge for themselves, we submit the following specimens of Dr Kalisch's skilful manipulation, premising that they are of the average quality, and that they are the product, not of a wearisome argumentation and reasoning, but of an analytic empiricism of the author's own, which conducts him, as it were, instinctively to determine both what the original writer *intended* to communicate, and the *extent* to which he is entitled to credit—a process simple and summary enough, having this advantage, that as it does not require a statement of the grounds for any given decision, there is no room for counter-argumentation; while it saves the reader much uncertainty, provided only he has confidence in the infallibility of his guide. Passing over the remarks that, as regards the creation, "the Biblical records are in many essential points utterly and irreconcileably at variance with the established results of modern research" (p. 52)—a conclusion which, however, upon this theory presents no difficulty—we come to notice the "kernel" presented in the narrative of the Fall. Here we see "the two eternal stages in the development of the human mind:" first, "unconscious innocence moving in the prescribed sphere because it has neither power nor desire to abandon it." Then "the innocence of childhood ceases, the warfare of youth follows, but manhood restores the peace by a higher unity." Adam was such a child; but in due time, and by an act of disobedience, "he rose above the common animal kingdom, and became a *moral* creature" (p. 86): "he has made a gigantic step beyond the limited sphere of his primitive existence" (p. 128); though our author complacently adds, "This change in man is a *fall* as well as an elevation;" but we cannot well see how it can be so, as, upon our author's hypothesis, man was previously "undiscerning, and therefore irresponsible and guiltless" (p. 108);—more especially when it is further added, "he has not actually lost his innocence" (p. 128). In order to complete this point, we may as well subjoin, "Man is not *sinful* by nature, but weak and open to seduction; *his heart* is not bad, but evil propensities might easily be *raised* in him; he is not necessarily wicked, as if baseness were inherited by birth, for Enoch and Noah were virtuous," etc. (p. 202).

In the narrative of the Flood, the author of the Pentateuch employed, according to this new authority, the materials in the form in which they had become the common legendary property of nations; and, though "based upon a historical fact," it is not to be tolerated that a catastrophe *such as he represents it*, ever occurred (p. 211). Dr K. says of the Cainites, that "though known to the Hebrews, they did not enter into any internal connection with them: they were the nations of the far East" (p. 153), plainly intimating that they survived the flood; though afterwards it is stated that they were swept away by it (p. 157).

We had intended to make some reference to Dr Kalisch's views on what is generally held to be the Messianic promises of Genesis; but we dare say our readers have had enough of his exegesis and theology. We simply remark, that he completely ignores any such idea in this portion of the Old Testament. The Messianic conception originated with "the Prophets" (p. 227), long subsequent to the state of development represented in the Pentateuch. And with this we might close our strictures on the present work; but as our author may hold that the matters to which we have hitherto adverted belong to the "form," and not to the essentials of his Commentary, which he designates as "historical and critical," we subjoin a few observations touching its historical and critical worth.

We willingly admit that in both these points of view the work displays much industry on the part of the author. Its numerous references to preceding writers on the great multiplicity of subjects which come under review, show a great amount of reading and literary research. Indeed, there is in many places what we would be disposed to consider a redundancy of names and authorities. On the other hand, we frequently miss all reference to authorities in cases where they would be of essential service, particularly in the critical notes,—when, for instance, renderings of the text are proposed or defended which, to readers whose studies have not been specially directed to such matters, must appear new or startling. Would it not have been better, in such circumstances, to apprise us of the course which these proposed translations had already run, and of the reception they had experienced? Thus, for example, when Joseph's exhortation to his brothers (Gen. xlv. 24), which in the E. V. is, "See that ye fall not out by the way," is rendered, "Do not be afraid on the way," it would be some satisfaction, we think, to be told that this had been advanced previously to Dr Kalisch by Von Bohlen, Tuch, and Baumgarten, but that it is rejected by the great body of Biblical critics, including Knobel and Delitzsch, the latest writers of note on Genesis. Other examples of what we must deem a misjudged reticence, present themselves in abundance.

To the strictly critical portion of the work we must, however, award higher praise; and had the author confined himself more closely to the elucidation of critical and historical points, he would have rendered more service to his readers than by the Biblical alchymy in which he delights. Dr Kalisch's philology is in general correct, particularly when he keeps close to the acknowledged leaders in that department, and with whose labours he is evidently familiar; but wherever he attempts flights of his own, he is scarcely so successful. We submit one pasage, out of many, where we think our author has missed the true sense of the text. Isaac's blessing on Esau (Gen. xxvii. 39) is here rendered: "Behold, *without* the fatness of the earth shall be thy dwelling, and *without* the dew of heaven from above." We are aware that this is countenanced by high authorities, although Dr K. does not say so, as Le Clerc, Shumann, Tuch, Baumgarten, Knobel, and others; but on what philological grounds can expressions identical with those which already occurred in the blessing on Jacob (ver. 28) be so differently rendered here? Dr K. says, "The words

addressed to Esau cannot mean '*of the* fatness of the earth, and *of the* dew of heaven,' but must signify *without* them; for in the former sense, the prediction would be untrue, since Idumea is no fertile, but, on the whole, a most dreary and unproductive land" (p. 515). The principle of interpretation here acted on is exceedingly unsafe; and he is in error even as regards the character of the locality, on account of which such a rendering of the passage is resorted to. (See Robinson's Bib. Res., 2d Ed., II. 154.)

In parting with this volume, we honestly affirm that it has added nothing to our knowledge of Genesis. Fully conscious of the difficulties of the subject, and of the poverty of our literature in works tending to elucidate any portion of the Pentateuch, the most important division unquestionably of the Old Testament Scriptures, we were really disposed to extend every indulgence to the present work; and we accordingly feel the greater regret that our censure must be so unqualified. Its *rationalism* equals anything we have seen in German productions; and with this distinction, that whereas in the one case it is the avowed rationalism of Gentiles, who profess no allegiance to Moses and his law, here it is a voice from the very synagogue of Israel, declaring, we are sorry to say, as once in the camp, "As for this Moses, we wot not what is become of him."

1. *Geological Map of Scotland, from the Most Recent Authorities and Personal Observations.* By JAMES NICOL, F.R.S.E., F.G.S., Professor of Natural History, University, Aberdeen. *The Topography.* By A. KEITH JOHNSTON, F.R.S.E., etc. Edinburgh: William Blackwood and Sons. 1858.
2. *The Story of a Boulder.* By ARCHIBALD GEIKIE, of the Geological Survey of Great Britain. Edinburgh: T. Constable and Co. 1858.
3. *The Creative Week: Being a Secular Exposition of the Mosaic Record of Creation.* Edinburgh: Maclachlan and Stewart.

IT says much for the courage and enterprise of Professor Nicol and Mr A. Keith Johnston, that they have leagued together to bring out a Geological Map of Scotland, at a time when the accomplished staff of the Geological Survey are busily at work, with the view, we trust, of giving the nation not only geological maps of particular districts, but a general one for the whole country, formed on the basis of these. This new map, however, by the able author of the "Guide to the Geology of Scotland," is most welcome, both because of its economic and its purely scientific value. The accurate topographical markings of Mr Keith Johnston add much to its interest. The relation between the character of the soil, and the social condition of those dwelling on it, is well known. With this map for reference, an intelligent man will find a key to both in his summer rambles. Thus we hope that it will find its way into many other hands than those of geological students. It has, indeed, claims on the attention of all who take an interest either in the surface characteristics of particular districts, or in their mineralogical features and agricultural capabilities. Professor Nicol does not aim at more than a well-defined outline of geological features. 'A large amount," he says, when referring to his materials for the

work, "of important information has thus accumulated, requiring, however, from its very unequal value, to be used with caution. It is therefore hoped that this map, though much still remains to be done in working out points of detail, will be found to represent accurately all the important geological features of the country." We can bear cordial testimony to its general accuracy. We have travelled with it as a guide over wide districts of Scotland—east, west, north, and south, we may say—and have tested it at one point and another. A few weeks ago we tried it in localities, with the general geological features of which we happen to be pretty well acquainted. Taking Linlithgow as a starting-point, and finding halting places at Edinburgh, North Berwick, Dunbar, Coldingham Bay, Abbey St Bathans, Dunse, Kelso, and Yetholm, we had, as our readers will observe from a glance at the map, a district of survey brought under notice, whose geological characteristics present considerable variety. Having some knowledge of the localities of which the places named may be regarded as centres, our visit to them afforded a favourable occasion for looking at them in the light of Professor Nicol's map. Leaving the picturesque trap hills to the south of Linlithgow, we pass eastward through the Lothian coal-fields, and marking the influence, both on the strata and on the landscape, of those great masses of volcanic rock—Binny Crags, Dechmount Law, Dalmahoy Hills, Corstorphine Hill, Salisbury Crags, and Arthur's Seat, we reach North Berwick Law. Lingering here for a few days, we have an opportunity of examining the glacial markings at Kingstone Hill, first pointed out by Sir James Hall, and, along the coast from Dirleton to Dunbar, the patches of Old Red. Passing the Old Red, which stretches from Dunbar to the south, we meet the Coal Measures again, with their well-marked bands of limestone. From the Pease Bridge, after having examined the interesting section of the Carboniferous on the shore, not marked in the map, we pass on to Reston over the Silurian, and turning to the north towards Coldingham, reach those rugged masses of Porphyry which make the coast scenery from St Abb's Head to Eyemouth so picturesque. Quitting Coldingham, and journeying towards the south, we meet the Devonian again near Auchincraw. Then directing our steps N. by W., we enter once more the Silurian, reach Abbey St Bathans, cross the Witeadder, and, turning again to the south, we skirt the Syenite of Cockburn Law, meet near Millburn the Old Red, and notice how it lies to the protruded trap at Dunse Law. Our next excursion, with Professor Nicol's admirable map as our guide, led us by Gavinton, Nisbet, Mount Pleasant, Kames, and Eccles, on to Kelso, having in the route touched the Devonian, and traversed the Merse Carboniferous. We noticed in this journey, however, that there is nearly a couple of miles given to the Devonian, which should have been marked as the Coal Measures. Langton Burn, between Lord Breadalbane's seat, Langton House, and the village of Gavinton, passes through the Coal Measures, and not, as in the map, the Devonian, which first occurs nearer the Lammermoors. Leaving the Carboniferous a little to the south of Kelso, we passed by Kersknow, Linton, and Morebattle, over the Trap, and reached the Porphyry among the outliers of the Cheviots.

We might refer to other wanderings in which this map was used, both as a topographical and geological guide; but let the above suffice. The only point at which it seemed to us at fault, was the small one referred to above. After this notice, we need hardly say, that we very cordially recommend "The New Geological Map of Scotland" to our readers.

We had occasion, in May last, to notice the "Manual of Geology," by Mr Beete Jukes, Local Director of the Irish Geological Survey. The author of "The Story of a Boulder" is connected with the Scottish Branch of this great national undertaking. We welcome contributions to the literature of Geology from members of this Survey staff. Such contributions as those now referred to, will help the public to form a correct estimate of the men employed, under the authority of Parliament, to carry forward this great scientific enterprise. In our notice of Mr Jukes' Manual, we indicated our high appreciation of it as a scientific work; and it is with pleasure that we can say of Mr Geikie's volume, that it bears good testimony to his attainments both in literature and science. It has been written for the uninitiated, and especially for the young. With some fancy, and a memory stored with well-known bits of beauty from classical writers, the author discourses so pleasantly and prettily on his "Story," that we are sure he will beguile many of the young of both sexes to the study of Geology. A boulder from the Lower Carboniferous is introduced and described. Theories of glacial action are referred to; the mineralogical features of the boulder are pointed out; and when it has been made to yield to the smart hammer, we are told of its inclosed calamites, stigmaria, and lepidodendra. Thus the boulder becomes a standing-point, from which we may review the giant geologic ages, as we look from the Carboniferous downwards to the foundations of the earth, or upwards to the modern epoch. The characteristic fossils, especially of the carboniferous and older formations, are described with ability, and climatal influences at work in the different periods are pointed out. There are a good many statements which, we think, might have been withheld, or made without the personal confidence which characterises them. For example, after referring to Mr M'Laren's view of the alleged action of the Trap in pushing up the Coal strata (a view which, notwithstanding the new ones on Trap action which will, we understand, be fully brought out among the fruits of the Scottish Survey, we believe has much truth in it), Mr Geikie says,—"An examination of the district has convinced me that this view is incorrect." We should have liked that Mr Geikie had favoured us with the grounds for this judgment in the district pointed to by Mr M'Laren.

We are sure it would have conduced more to the success of this volume, had it been called by another name than this affected-looking one—"The Story of a Boulder." *Manual*, *Handbook*, *Sketches*, yea, even "*Visions*," would have been better than "The Story!" We lately found a worn oyster shell in a most unlikely locality for such—the bed of a Lammermoor streamlet. How had it got there? It seemed to have been rubbed by the water action for generations, and it had lost all flavour of the sea; full-grown *Patellæ* were clustering

on it, and the larva of the case-flies (*Phryganea*) had glued to it its tube-house of particles of shining sand, and bits of stick and small stones. We might have, with even more propriety, let fancy run riot, and have written an account of the physical characteristics of the present epoch, under the title of "The Story of an Oyster Shell," than Mr Geikie can claim for his able review of the leading formations of the earth's crust under the heading, "Story of a Boulder." In style of treatment, Mr Geikie is a close imitator of the late Mr Miller. As we expect other contributions to the literature of Geology from a young author who has begun so well, we advise him, in future, to break away from the fascination in the mode of handling every subject to which Mr Miller turned his great mind. Hugh Miller's style was to Mr Geikie's as Wallace's sword to modern blades. Any attempt to imitate it by one who has only something of Fancy where Hugh Miller had a grand Dante-like Imagination, Talent where he had Genius, and a Lady-like capacity of treatment where he had the grandeur as of a Giant's grasp, must ever suggest contrasts anything but favourable to the imitator. But, notwithstanding these drawbacks, we regard Mr Geikie's book with much good-will, and trust that it will obtain public favour, as an able guide to a science which has peculiar attractions to the young, and which speaks to its advanced students with a voice growing in majesty and meaning the longer they study it.

We began to read "The Creative Week" with a strong feeling of misgiving. From a sense of duty, in connection with recent controversies on the first chapter of Genesis, rather than from any strong love for the subject, we set ourselves to ascertain what the author of this book, which we had heard a good deal of from friends, had to say on the matters debated. We have recently read many works on the same subject with not a little disappointment: some of them written by men who might have been addressed in the style of *Boileau* to the "Grand Monarque," when he turned to versifying. Having asked the bitter critic's opinion of his lines, he received the answer—"Sire, nothing is impossible to your Majesty. You determined to write some bad verses, and you have succeeded to perfection!" The most charitable view we have been able to form of the recent semi-theological works of some able geologists, who have rushed into the controversy ill instructed in theology, is, that the books are so far *below* the powers exhibited by their authors in departments of pure science, that they must have *intentionally* made them weak to perfection! But this class of works is really not so discreditable as that whose authors, having some theological knowledge, pick up a scantling of science from books, and elbow their way into the contending crowd as if fully equal to the settling of every controversy—if we may receive their estimate of themselves. "The Creative Week" does not belong to either class. Both in scientific and theological knowledge, the author is fitted for dealing with the subject which he reviews. We cannot, however, promise that any one beginning to read this volume will, at the outset, find it interesting. Its look is not very attractive; and though the discussions in philology give evidence of much ability, they have little of the sunshine which might be let in on such discussions, and

will thus not keep up the attention of any, except of those who have a native taste for them, or of those who read in order to guide others. The author asks a hearing. We have listened to him with all patience, and recommend our readers to do the same. The knotty threshold understood and passed, they will find on pp. 72, 73, statements which will reward them. The theory there indicated may not indeed meet all their difficulties; it will, however, suggest a ground of rest which they may not have before thought of. The author arranges the physico-theologians under four classes:—1*st*, *The à priori men*, who hold that a long period intervened between "the beginning" of Moses and the first creative day; 2*d*, *The à posteriori men*, who regard the seven days of the Mosaic record as geological periods; 3*d*, *The ne utri men*, who accept the statements of Geology, that a long period existed before the creative week, but hold that the Mosaic account makes no direct reference to that period; and, 4*th*, *The ex nihilo men*, who deny the existence of the globe before the creative week, and press the whole phenomena of creation into the six days. Notwithstanding our author's able but severe remarks on the scheme held by the first, or *à priori* class, and while we would certainly not accept their scheme as final, we think he has not made out a case, either on the ground of language or Geology, against their views of the expression, "in the beginning." Neither has he rightly interpreted their views of chaos. Indeed, they plead for nothing more as to this than what is here admitted (p. 121). His remarks on the advocates of the *Age-theory* men are able, trenchant, and to the point. The third, or *ne utri* class, is that with which he identifies himself. He accepts, on geological evidence, an indefinitely long period before the six days' works; holds that Moses (p. 73) never makes the slightest allusion to this period; and believes this is what might have been expected, "because it is not the object of revelation to instruct mankind in the truths of science." His references to the *ex nihilo men* show that he has taken up very strong opinions against them. This is right enough; but it seems to us that he goes out of his way in speaking with such contempt of the views of the Westminster divines on Creation. But, apart from this, we hope our remarks will lead others to "The Creative Week." They will find much in it worthy the special attention of all who take an interest in the controversies with which it deals.

1. *The Rise of the Papal Power.* By Robert Hussey, B.D., Regius Professor of Ecclesiastical History, Oxford. Parkers. Pp. 209.
2. *Modern Romanism, British and Continental.* A Popular View of the Theology, Literature, and Practical Workings of Popery in our Time. By the Rev. James A. Huie, Wooler. 2d Edition. Edinburgh, Moodie. Pp. 149.

It requires no ordinary ability, and no common attainments, to qualify a man for grappling effectively with the subject of Popery. The ramifications of the Romish system are so vast and intricate, its errors harmonise so closely with corrupt propensities, its perversions of Divine truth come so directly across the path of the most momen-

tous doctrines of the Gospel, its history is so interwoven with records of the world and of human opinion for more than a thousand years, its polemical literature is so varied and extensive,—in a word, it touches human life, and history, and literature, and philosophy, and politics, at so many points, that to take a clear and comprehensive survey of so vast a topic, demands an amount and versatility of powers and acquirements which but very few possess. It is rare, indeed, to meet with the requisite qualifications for embarking successfully in the Popish controversy, and expounding the principles and procedure of the Church of Rome, so eminently combined as in the authors of the volumes before us. In perusing them, we have often felt how inadequately the importance and value of books may be represented by their size.

Oxford looked, with good reason, on the late Professor Hussey as one of her ablest and most learned sons. As the editor of Socrates and Bede, he had gained the gratitude of ecclesiastical students. The little volume, whose title is given above, is the only original work which he published during his fourteen years' occupancy of the Church History Chair at Oxford. It is valuable as tracing, with much ability and general accuracy, the rise of the Papal power —the successive assumptions of the Roman See. Mr Hussey assumes that Papal Infallibility is unquestionably a tenet of the Romish Church, and that she is to this day bound by all the persecuting edicts of the mediæval Pontiffs. Logically, we have no doubt she is so. Nor do those who, while they repudiate the principle of the Pope's infallibility, claim it for the General Councils, escape from the dilemma, because the fact of the martyrdom of Huss and Jerome of Prague by the Council of Constance pledges the conciliarists to the doctrine that it is right to put "heretics" to death. In a Romanist controversial pamphlet, recently forwarded to us, we observe an attempt made to set the death of Huss in a new light. It is stated that the Church had no hand in the matter, but that it was demanded as a political necessity!

In point of style, Professor Hussey had not the graphic power which belongs to his successor in the Chair of Ecclesiastical History, the accomplished biographer of Arnold. All must, however, share the regret which, since his death, has so often been expressed by Oxonians, that he was taken away from his labours when not more than fifty years of age. In this little work he has left the proof that, had he been spared, he might have done much good service in the Popish controversy.

No one can peruse Mr Huie's book without perceiving how extensive a course of reading its author must have gone through before he could write it, and how thoroughly he has the results of his reading at his command. But while he gives evidence of an uncommonly extensive and familiar acquaintance with patristic and mediæval literature, it is not from these sources alone, or chiefly, that he has taken his view of Romanism, as exhibited in this volume. It is from its movements in our own day, at home and abroad. And here Mr Huie has looked with his own eyes, not with those of others,—has collected his own facts, and made his own reflections, not borrowed

them from previous writers on the Popish controversy. And to this we owe, in a great measure, the pleasant air of freshness which pervades the volume. The controversy with Rome is at once a wide and a well-wrought field, in which it is not easy to find a corner which has not been recently cropped. But Mr Huie has produced a work in which even well-informed men will find much that is by no means familiar, and will discover a deep significance in many circumstances which they may possibly have hitherto dismissed from their minds as trifling or accidental. Obviously in these 150 pages we have the elaborate result of long years of careful reading and keen observation,—reading ranging over the literature of many centuries, and of various languages; and observation keeping a watchful eye upon the Church of Rome throughout all her borders, and in all her machinations.

After a rapid historical sketch of Popery from the Reformation to the close of the eighteenth century, Mr Huie enters upon the consideration of Modern Romanism in Britain. He exhibits the reviving zeal and energy of the Romish priesthood about 30 years ago, and notices their anticipations of better days than they had seen for many generations; develops the character, and estimates the influence, of Tractarianism in promoting the cause of Popery; discusses the lack of "pulpit power" among the clergy of the Church of Rome, and points out the causes of this deficiency, and its bearing upon her attempts at proselytism; presents the statistics of Romanism in Britain in connection with chapels, schools, convents, etc.; explains her weakness, as acknowledged by the *Dublin Review*, "in that middle element which forms the sinewy strength and motive power of every social body—the mercantile, professional, manufacturing, and trading classes;" and unfolds, with the freedom and precision which only an intimate and extensive acquaintance with the subject can impart, the distinctive characteristics of the literature which modern Romanism has originated, and now wields in her service. It is here, as much as anywhere, that our author's strength lies; and it is here that some of the freshest glimpses of Popery, which his book affords, are to be found. He notices, in a brief but able and graphic manner, the Popish periodical literature of the time, and presents to us vivid sketches of the more prominent Romish writers, from Cardinal Wiseman down to Priest Keenan of Dundee, photographing, as it were, Dr Newman, Archdeacons Wilberforce and Manning, and others. Passing to France, he displays the same familiarity with the movements and attitude of Romanism in that country, and especially with the modern French literature, both of Popery and Protestantism. Then turning to Germany, we have topics of equal interest handled with no less ample knowledge and vigour of touch.

We commend Mr Huie's work to our readers. The general glance which we have given at its contents will indicate that there is no other volume, in the British literature of the Popish controversy, in which the same topics are dealt with.

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